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U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Oregon State Office
P.O. Box 2965
Portland, Oregon 97208

Draft

December 26, 1989

Western Oregon Program—Management of Competing Vegetation

Proposed Record of Decision

copy available

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major resonsibility for American Indian reservation communities for people who live in Island Territories under U.S. administration.

BLM-OR-ES-90-11-1792

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
OREGON STATE OFFICE
P.O. BOX 2965 (825 NE MULTNOMAH STREET)
PORTLAND, OREGON 97208

IN REPLY REFER TO:
5700 (931.3)

December 26, 1989

Dear Readers:

This is the "Proposed" Record of Decision emanating from the Final Environmental Impact Statement describing our alternatives for the control of competing vegetation in western Oregon. Because of the intense interest in our vegetation management program, I am providing a 45 day review period for the proposed decision. Please take this opportunity to provide us with additional information you think we should consider in finalizing a decision.

The proposed decision reflects consideration of the comments on the DEIS, the 1986 supplement and the 53 letters received on the Final Environmental Impact Statement. In addition, it reflects results of court ordered mediation between the U.S. Forest Service and Oregonians for Food and Shelter, Paul Merrell and the Northwest Coalition for Alternatives to Pesticides. This mediation focused on differences regarding the U.S. Forest Service 1988 "Record of Decision" for their proposed program for managing competing and unwanted vegetation in region 6 (Pacific Northwest Region).

Comments may be sent to :

Oregon State Director
c/o Tom Aufenthie
Bureau of Land Management (931.3)
P.O. Box 2965
Portland, Oregon 97208

Thank you for participating in the environmental analysis and decision making process. Your continuing interest plays an important role in our decision making process.

Sincerely,

for: D. Dean Bibles
State Director,
Oregon and Washington

Western Oregon Program—Management of Competing Vegetation

Proposed Record of Decision

Prepared by
U.S. Department of the Interior
Bureau of Land Management

Proposed Record of Decision

Western Oregon Program
Management of Competing Vegetation

Western Oregon Program – Management of Competing Vegetation

Draft (X) Final ( ) Proposed Record of Decision
U.S. Department of the Interior
Bureau of Land Management

I approve and concur in the adoption of the Western Oregon Program, Management of Competing Vegetation as defined in the Attached Record of Decision and analyzed in the Final Environmental Impact Statement, entitled, "Western Oregon Program – Management of Competing Vegetation", U.S. Department of the Interior, Bureau of Land Management (February 1989).

The public is advised that the preferred alternative in the FEIS has been modified by the Record of Decision to reflect increased emphasis on the prevention of vegetation management problems and on alternatives to herbicides. Proposed techniques include prescribed burning, cutting, hand pulling, mechanical methods, paper mulching, grazing and the selective use of eight herbicides. Burning practices will be modified to reduce potentially hazardous emissions.

Vegetation management methods proposed for use on any specific site must be in accordance with existing land use plan and management objectives for the site.

Signed: Paul M. Peterick
State Director

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Chapter 1 Introduction

In 1983, BLM was enjoined by court order from using any herbicides in its Medford, Oregon district. Subsequent court action in 1984 enjoined BLM from the use of herbicides throughout Oregon and the U.S. Forest Service was similarly enjoined throughout Region 6 (Pacific Northwest).

Before the court order, BLM had initiated public scoping meetings to identify public concerns about their vegetation management program. These meetings were held during July 1982 throughout western Oregon. Various concerns relating to the environmental impacts of vegetation management on air quality, soils, water, vegetation, fish/wildlife, social factors, economic conditions, human health and ecology were raised. The 1982 scoping process identified herbicide use and prescribed burning as major controversial vegetation management methods because of potential human health effects.

A Draft Environmental Impact Statement (DEIS) for the Western Oregon Program for the Management of Competing Vegetation, was released for public review and comment in June 1983. That DEIS described and analyzed the environmental impacts of implementing an integrated pest management (IPM) program for managing vegetation which interferes with the survival and growth of commercial tree species, adversely affects wildlife or encroaches upon recreation sites and roads. It applied to all Bureau of Land Management (BLM)-administered land in the Coos Bay, Eugene, Medford, Roseburg, Salem and portions of the lands that were within the Medford District but are now in the Lakeview District as a result of the 1987 reorganization. Public comment on the DEIS emphasized potential health effects from herbicide use; therefore, based upon these comments and judicial opinion, BLM, in cooperation with the USDA Forest Service (USFS), conducted a Risk Analysis of the impacts of herbicide use on human health. This Risk Analysis was released to the public by BLM as a supplement to the DEIS in February 1986. Throughout the process of preparing the final EIS (FEIS), additional information was solicited and incorporated into the document. For example, an evaluation of BLM reforestation success without herbicides since 1984 was reflected in a reduction of the impacts on timber production due to the loss of herbicides for alternative seven (no herbicides) in the FEIS. A review of the USDA Forest Service Vegetation Management EIS scoping which occurred in 1986 indicated no new issues but again stressed herbicide use and prescribed burning as controversial due to potential human health effects. The FEIS was an update of the material in the DEIS, the Supplemental Statement, response to public comments, and this additional information. The FEIS was issued February 10, 1989. Further information was requested during a 60-day comment period for the FEIS. To ensure that the decision making process considered all available data and analysis, the public review period was extended to May 6, 1989, to provide additional time for comment preparation by interested parties.

In accordance with the National Environmental Policy Act (NEPA), the FEIS identified impacts on the natural and human environment associated with eight alternatives, providing a wide range of management options for review and consideration. The alternatives considered in the FEIS address known public concerns and current issues. Comments, documents, and suggestions received concerning the FEIS were considered in preparing the proposed management plan and Record of Decision.

It should be noted that the U.S. Forest Service Region 6 FEIS and "Record of Decision" for its proposed program for "managing competing and unwanted vegetation" was issued in December 1988. Administrative appeal of this decision resulted in court ordered mediation which started on March 1, 1989. By May 24, 1989, a mediated agreement was reached between the U.S. Forest Service and the original litigants. Therefore, the U.S. District Court in Portland dissolved the herbicide injunction and dismissed the complaint against the Forest Service in May 1989.

Fifty-three letters commenting on the Bureau's FEIS were received from the public and special interest groups.

The suggestions offered in these letters, the Forest Service mediation results, the results of earlier public input and the environmental analysis form the basis for the proposed decision.

Please note that the following is the "Proposed" record of decision for you to evaluate and make suggestions for consideration in developing the "Final Decision Record." The final "ROD" will be written after a 45 day public comment period on this draft.

Chapter 2 The Proposed Decision and its Specific Provisions

The proposed decision is to implement an integrated vegetation management program for western Oregon that focuses on minimizing the impacts on air quality from prescribed burning and on the potential adverse human health effects from using herbicides. I am recommending that we establish and follow the following vegetation management priorities during the course of meeting our legal mandates in Section 1-2 (a)(12) the Federal Land Policy and Management Act of 1976 which directs "that public lands be managed in a manner which recognized the nations need for domestic sources of minerals, food, timber and fiber ..." and Section 701 (b) which states "notwithstanding any provision of this Act, in the event of a conflict with or inconsistency between this Act and the Acts of August 28, 1937 (50 Stat. 874; 43 U.S.C. 1181a-1181j), and May 24, 1939, (53 Stat. 753) insofar as they relate to the management of timber resources and disposition of revenue from land and resources, the latter Acts shall prevail."

Vegetation Management Priorities are as follows:

Priority 1

Take actions to prevent or minimize the need for vegetation control when and where feasible considering the management objectives for the site.

Priority 2

Use effective non-chemical methods of vegetation control.

Priority 3

Use herbicides only after considering the effectiveness of all potential methods, the environmental and human health risk of each method and the relative cost of implementation for each method.

The decision serves two objectives: 1) Protecting human health through measures designed to minimize risks to the general public, BLM employees and contract workers, and 2) Meeting legal mandates for the sustained yield of forest products and services.

This decision is within the scope of the alternatives discussed in the EIS. For reference purposes, the decision is labelled alternative 1A. Alternative 1A maintains flexibility to use all available vegetation management tools while emphasizing an increased reliance on non-chemical and non-burning methods of problem prevention or vegetation treatment. The techniques proposed for use in an integrated program include preventive actions, biological control, prescribed burning, mechanical cutting, hand cutting, hand pulling, and chemical control.

IPM Defined

For clarity, I am expanding on the Integrated Pest Management (IPM) definition in the FEIS glossary to reflect the generic definition which says, "IPM is a systems approach to reduce pest damage (unwanted vegetation) to tolerable levels through a variety of techniques, including natural predators and parasites, genetically resistant hosts, environmental modifications and when necessary and appropriate, chemical pesticides (herbicides)". IPM strategies generally rely first upon biological defenses against pests before using chemicals.

Prevention

The term "prevention" means to detect and ameliorate the conditions that cause or favor the presence of competing or unwanted vegetation in the forests before vegetation develops that could interfere with the objectives for managing that area or adjacent lands. Prevention is in contrast to treatment, which refers to activities for controlling or eradicating infestations of competing or unwanted vegetation. Prevention should not be confused with early treatment, which refers to activities for controlling or eradicating existing, small infestations of competing or unwanted vegetation before they interfere with the agency's objectives for managing that area or adjacent lands.

The state of the art in prevention strategies in forest vegetation management is not well developed. Specific strategies are currently limited by lack of experience and applicable research results. BLM will evaluate preventative strategies for use preferentially where practical and effective.

Expectations Regarding Treatment

Acreage expectations projected for treatment in the FEIS are intended only for the purpose of analyzing probable environmental impacts, not to set management goals or limitations. Site-specific analysis will be used to determine which projects are needed and how many acres will be treated in order to meet vegetation management goals described in applicable current timber management plans or future resource management plans. Vegetation management in western Oregon will not rely on any single method of treatment or control.

Herbicides Proposed for Use

BLM is proposing the use of 2,4-D, Atrazine, Glyphosate, Triclopyr, Hexazinone, Picloram, Dicamba and Asulam.

Herbicides Deleted

Two specific herbicides (Diuron and Fosamine) which were evaluated in the FEIS will not be used. The lack of sufficient information at present to conduct a full direct toxicological evaluation of these two chemicals and the availability of suitable alternatives forms the basis for the decision. Three other herbicides (Diquat, MSMA and Ammonium Sulfamate) initially proposed in the DEIS will not be used because of the availability of suitable alternatives and limited need.

Treatment Method(s) Selection Criteria

Environmental impacts, effectiveness, human health, safety, and expense of each method will be evaluated through a site specific analysis by a competent interdisciplinary team as part of the environmental analysis process required by NEPA. Public comments will be considered in making site specific decisions. If the proposed decision is to use herbicides, only the least toxic of the effective herbicides will be used and the proposed decision must be made known to the public at the earliest practicable time.

The following yardsticks will be used to measure potential environmental effects, effectiveness and expense.

Environmental Effects

Potential impacts on soil, air, water, wildlife, vegetative community, visual resources, human health and social values will be analyzed using new or additional research findings, proven field experience (monitoring results), public input and professional judgement. The results will be documented in the enviromental analysis process.

Effectiveness

The yardstick for comparison is whether another method (other than herbicides) for treating the competing or unwanted vegetation can achieve the resource management goal. If it does, even though not as easily or quickly as with the use of herbicides, then that other method is deemed "effective." Conversely, if all other methods cannot achieve the resource management goal but herbicides can, then the other methods are ineffective. All methods must be evaluated in terms of their operational practicality and feasibility.

Expense

If methods (including no-action) other than herbicides would render resource management goals untenable economically, then they are too expensive (see Appendix "A").

Cost alone will not be the sole criterion in the decision making process. Effectiveness, environmental impacts and cost will be weighed together on a site specific basis in order to arrive at a balanced decision.

Program Coordinator

A Vegetation Management Program Coordinator in the BLM's Oregon/Washington State Office has the following responsibilities in conjunction with a district counterpart:

1. Review selected proposed projects that may have implications for the use of herbicides to treat competing and unwanted vegetation before a decision is made to proceed with such projects.

2. Monitor compliance with the proposed program to prevent and treat competing and unwanted vegetation. Ensure that field operations conform with management's expectation governing the use of herbicides and other vegetation management methods.

3. Participate in technology transfer meetings to address ideas, successful applications, and difficulties regarding the agency's program to prevent and treat competing and unwanted vegetation.

4. Serve as a contact with the public regarding BLM's western Oregon or district vegetation management program and issues.

5. Continuously develop, arrange and incorporate new information about vegetation management methods into program operations.

Program Size and Scope

The size and scope of the vegetation management program will depend upon the production goals in approved land use and timber management plans and available budget. This Record of Decision will not result in a massive one shot effort to use herbicides to address a backlog of acres currently identified as

needing treatment. Instead, the focus is on alternatives to herbicides, and the last priority (use of herbicides) requires a "start-up" at levels less than the 42,000 acres annually shown for the analysis in the EIS. The current acreage needing vegetation control consists of 68,000 acres of plantation maintenance, 72,000 acres of site preparation, 63,000 acres of plantation release and 82,000 acres of precommercial thinning.

Ongoing Search For Alternatives

BLM managers and field employees will continue to evaluate the operational feasibility of new research findings on alternatives to herbicides. The exploration of new ideas for prevention or treatment of vegetation problems will be encouraged through such cooperative research as the Oregon State University (OSU) sponsored Coordinated Research Alternative Forest Treatment Systems (CRAFTS) and Coastal Oregon Productivity Enhancement (COPE) programs designed in part to address these issues.

Chapter 3 Program Implementation Features

Standard Operating Procedures, Project Design Features and Mitigating Measures

Following is an overview of standard operating procedures, project design features and mitigating measures. Procedures for site specific analysis are contained in appendix "A" entitled, WESTERN OREGON VEGETATION MANAGEMENT PROGRAM - IMPLEMENTATION STANDARDS AND GUIDELINES.

Safety

All employees active in vegetation management will be trained in the safe use of prescribed fire, cutting tools, cutting equipment, herbicides and other techniques. Public access into areas being aerially sprayed will be controlled. Information packets containing the latest information on the potential hazards of all treatment methods will be made available to employees, the public and contractors.

Pre/Post Treatment Surveys

A field survey will be done to evaluate and document vegetative conditions prior to treatment. Post treatment surveys will be conducted to evaluate the effect of the treatment(s).

Environmental Assessment

An environmental assessment by an interdisciplinary team will be completed for proposed projects.

Archeological–Historic Resources

Projects that may affect areas of historic or archeological value will be subject to standard cultural surveys. Projects will be modified to protect these values if found.

Recreation Sites

Recreation sites proposed for vegetation management with herbicides will be treated prior to or after maximum recreation use periods.

Threatened or Endangered Plants

Projects that may affect areas of threatened or endangered plants will have standard botanical surveys conducted. Threatened or endangered plants on proposed treatment sites will be protected by project modification or special protection measures.

Wildlife

Proposed treatments important in wildlife calving and wintering areas (that reduce forage production) will be scheduled on alternate years or areas so that forage resources are not significantly impacted. In addition, consideration will be given to treating no more than 25 percent of the 0-15 seral stages within a 1-mile radius of a treatment unit during any three year period if adverse impacts to wildlife are identified.

Important Wildlife Mating and Nesting Areas

Proposed projects will be modified, avoided or deferred to protect areas critical to wildlife.

Wildlife Trees

Wildlife tree retention will be in accordance with applicable management plans.

Special Management Areas

Areas of critical environmental concern (ACEC) and other special areas will be managed in accordance with approved plans.

Game Trails

Precommercial thinning projects will contain provisions for maintaining existing game trails free of slash accumulation that impede big game movement.

Water Soluble Herbicides

Application of water soluble herbicides will be avoided on asphalt, paved road surfaces and on soil types where watershed analysis indicates that measurable contamination of ground or surface water is likely.

Riparian Zones

Riparian habitat will be protected in accordance with applicable management plans.

TORDON Herbicide

Areas proposed for broadcast treatment with TORDON will be evaluated by a hydrologist and/or soil scientist for potential leaching and long term phytotoxic impacts both on and off site before treatment will be authorized.

Minimum Width Buffer Strips

If herbicides are proposed for use, the following unsprayed buffer strips will be reserved adjacent to class 1 (BLM order III and above) streams, lakes and ponds in accordance with the Oregon State Forest Practice Act requirements and definitions.

Application Method	Width (feet)
Aerial	100
Vehicle	25
Hand	10

A buffer strip at least 100 feet wide will be left untreated adjacent to dwellings, domestic water sources, agricultural land, and pasture when aerially applying herbicides.

Posting of Spray Units

Temporary project description signs will be installed at points of common public access where herbicides are used. Signs will be in English and Spanish and other languages as appropriate.

Herbicide Application Contract Requirements

Application contracts will contain stipulations to reduce the possibility for herbicide drift and spills. Contractors will be required to be trained and licensed for pesticide application

Prescribed Fire

Unburned buffers will be left along streams where practical, excessive consumption of litter and duff will be avoided, and accepted standards met.

Adjacent Landowner Notification

Adjacent landowners will be notified if herbicides are proposed for use.

Protective Clothing

Protective clothing and equipment, as specified on EPA approved labels, will be worn by workers directly involved in herbicide applications and by employees using hazardous tools/equipment. (See Appendix A, page 11)

Inert Ingredients

Only herbicide formulations that contain inert ingredients that are EPA categorized as low priority for testing will be proposed for use (list will be made available).

Hypersensitive People

An effort will be made to identify BLM personnel who are super-sensitive to toxic chemicals and who could be affected by proposed projects. Protective measures will be recommended.

Soil Protection

For mechanical treatment, tractors will be prohibited on slopes over 35 percent and on fragile or erodible soils. Tractor operations in municipal watersheds will be in accordance with memorandum of understanding with local municipalities. In accordance with approved timber management plans, untreated buffers will be reserved along streams, lakes and wetlands. Tractor operations will be limited to periods of minimum soil moisture levels so as to minimize soil compaction, erosion and movement.

Public Participation

When a site-specific project to prevent or treat competing or unwanted vegetation with herbicides is being considered, the public will be notified. This notice should precede the scoping stage of the environmental assessment of the project under the National Environmental Policy Act. Notice methods include the local newspaper, district office public room and other public places.

Before a decision is made to proceed with herbicides, the public will be invited to review and comment on the site specific analyses in the environmental assessment for the project.

The public is to be notified of the final decision for a site-specific herbicide project as soon as it has been made.

Monitoring and Evaluation

Monitoring the western Oregon vegetation management programs will be done in accordance with established BLM procedures as described below.

1. Site specific post treatment information will be gathered to aid in future project planning. This will include;

a. Efficacy of treatment.

b. Actual per acre project costs (direct & indirect) such as:
   (1) Administration
   (2) Training
   (3) Performance of work
   (4) Emergency response planning
   (5) Notification and posting
   (6) Herbicide/tool storage
   (7) Marking buffers
   (8) Public meeting and information sessions
   (9) Protecting equipment and clothing

c. Residue analysis in water as appropriate. (See Appendix A, page 28)

d. Herbicide Spills
Spills will require an environment analysis of environmental effects on wildlife, soil, water and other potentially impacted components of the environment.

e. Record of reported human health impacts to the public and project workers.

f. Any accident record should include;
   (1) Identification of individual(s)
   (2) Herbicide formulation, listed ingredients
   (3) Other hazards such as impacts from cutting tools, falls, equipment, and poison oak.
   (4) Symptoms experienced
   (5) Herbicide exposure incident(s)
   (6) Complaints filed by workers and mem bers of the public.

2. Periodic evaluation of the overall vegetation management program differs from monitoring in that it reflects a summary and analysis of individual project monitoring results. This evaluation coupled with perceived program needs for the future forms the basis for budget planning and projections. Items to be considered in the evaluation include;

a. How well the program is achieving resource management goals such as:
   (1) preparation of sites for planting trees
   (2) seedlings planted and survival rates
   (3) release of young conifers from competing vegetation
   (4) managing fuel hazards and preventing wildfires
   (5) controlling noxious weeds
   (6) improving wildlife habitat
   (7) maintaining recreational and administrative facilities
   (8) maintaining roadsides and utility corridors
   (9) supporting tree genetics and other research programs
   (10) maintaining timber growth and yields to meet long-term forest product needs.

b. What has been learned about the efficacy of the various treatment methods and what additional steps can be implemented to reduce the use of prescribed fire and herbicides and still meet management goals.
c. Steps recommended to fill data gaps regarding efficacy of treatment.
d. Projected needs for vegetation management by method for the next 1 to 5 years.
e. A summary of reported health effects from the various vegetation control methods employed. Health effects documented and verified by a qualified physician will be part of this report.

Process For New Information

The BLM Oregon state office vegetation management program leader will coordinate with appropriate Forest Service staff at the regional office to develop or obtain information packages for the methods of managing competing and unwanted vegetation, and for each of the herbicides available for consideration under the Record of Decision. These information packages will be incorporated in the environment assessment process and made available for public review and use. These information packages will be reviewed annually and revised as needed.

Information About Methods

a. Information packages will address the principal known and reasonably foreseeable health and environmental effects of each of the methods proposed for use in managing competing and unwanted vegetation.

b. Information packages will also address the use of herbicides in general, including as a minimum the following statements:

1) Synergism of Secret and Revealed Ingredients:

"The capacity of various ingredients in herbicide formulations to act synergistically to produce toxic effects is not known. One ingredient, for instance, may be a cancer initiator, another a cancer promoter; a solvent may dry the skin, allowing enhanced passage of another ingredient across the skin and into the body."

c. Male and Female Reproductive Health Risks

"There is uncertainty whether those herbicide ingredients identified as reproductive toxins may affect female or male workers who are exposed."

d. Susceptibility of Children

"Children can be particularly susceptible to pesticides for quantitative and qualitative physiological reasons including smaller body size, incompletely functioning immune systems, rapidly dividing cells (increasing susceptibility to cancer), thinner blood-brain barriers, and immature reproductive systems."

Herbicide Profiles

Information packages for specific herbicides (herbicide profiles) will summarize as concisely as possible the following topics where appropriate:

a. Reasonably foreseeable, significant, acute or chronic effects on human health from exposure to the herbicide as proposed for use under the agency's program, including data gaps in the available literature.

b. Reasonably foreseeable risks posed by contaminants, inert ingredients, and carriers in the herbicide's commercial formulations, including data gaps in identifying and characterizing inert ingredients and carriers.

c. Responsible anecdotal information or reports about actual acute or chronic effects on human health arising from exposure to the herbicide or its commercial formulations, including the range of symptoms associated with known incidents of mild or severe poisoning from the herbicide, its commercial formulations or methods of application, and summary information from an annual Region-wide compilation of worker/citizen complaints.

d. Acute or chronic effects on the health of fish and wildlife from exposure to the herbicide as proposed for use or experienced under the agency's program, including data gaps in the available literature.

e. Environmental fate of the herbicide in the air, soil, vegetative communities and water, including data gaps in the available literature, and verified methods of residue detection, and potential for by-products if burned.

Technology Transfer

As the BLM implements a program for managing competing and unwanted vegetation, it will continue to develop and incorporate new information about vegetation management methods, with the emphasis on prevention strategies, their usefulness and effects. Accordingly, the Oregon State Office Program Coordinator has the following responsibilities:

a. Monitor research findings about vegetation management methods on a continuing basis.

b. Revise assessments of the risk and effects of using vegetation management methods as needed, based on field experience, research findings, and new information about vegetation management methods or their effects.

c. Propose revisions in mitigation methods and management practices as needed to reflect new information about vegetation management methods.

d. Incorporate new information about herbicide use, availability, and effects in annual revisions of information packages.

e. Disseminate new information regarding prevention and management of competing vegetation.

f. Indicate whether or not underlying data are available to the public.

g. As a part of the above process, the BLM will work with the Forest Service and other agencies to locate, assess, and to the extent possible, make the information available to the public as follows:

1) 2,4-D Contaminants: A summary of the literature on the nature and extent of 2,4-D contamination with 2,3,7,8,-TCDD and other dioxins.

2) 2,4-D and Malignant Lymphoma: Monitor research findings. Review and recommend revisions in mitigation measures and management of risk as needed. Revise risk discussions in herbicide profiles as significant new information becomes available.

3) Inert Ingredients: Attempt to determine any unknown inert ingredients used in the herbicides proposed for use, and seek clarification of EPA's screening process for rating inert ingredients. Evaluate proposals to use formulations that contain formaldehyde to eliminate such use.

4) Acute Toxicity: Seek acute toxicity information for the full formulation of herbicides cited in the EIS. Recommend protective human health measures for formulations that have not been tested for legally required acute toxicity (i.e., LD50, skin and eye irritation).

5) Detecting Herbicides in Water: Describe availability of validated methods for detecting herbicides proposed for use (and their ingredients) in water.

6) Burning Herbicide Treated Sites: Recommend protective human health measures when burning vegetation that has been treated with herbicides that may release toxic chlorinated compounds into the environment.

7) Pesticides in Soil: Review persistence and mobility ratings and revise information packages if appropriate.

Interrelationships

Interrelationships between the proposed "Record of Decision" and other Bureau programs and agencies/ cooperators are briefly described as follows:

New Herbicides Proposed for Use

The environmental assessment (EA) will be prepared to evaluate herbicides proposed for use. This EA will lead to a decision to supplement the existing EIS/ ROD, a finding of no significant impact or a decision not to proceed with the proposed use.

Relationship to Existing Timber Management Plans and Proposed Resource Management Plans

Existing plans assume the use of all available vegetation management tools. New plans currently under development and alternatives considered therein will reflect results of the 1989 Western Oregon Vegetation Management Program, "Record of Decision", and will describe management direction and objectives.

Tiering by Incorporation

BLM will utilize existing approved environmental impact statements that contain relevant assessment information through incorporation by reference in environmental assessment documents and resource management plan environmental impact statements.

Interagency Coordination

BLM will work with the Environmental Protection Agency, U.S. Forest Service, Bonneville Power Administration, U.S. Corps of Engineers, Soil Conservation Service, State agencies, counties and other entities in planning and implementing the provisions of this "Record of Decision."

A determination of consistency of the proposed program for the management of competing vegetation with the Coastal Zone Management Program is included as Appendix "B."

Chapter 4 Summary of Environmental Consequences

Chapter 3 of the February 1989 FEIS entitled, Western Oregon Program - Management of Competing Vegetation, appendix "H" (Resource Programs and Human Health Risk Assessment - Qualitative) of the U.S. Forest Service region 6 FEIS entitled, "Managing Competing and Unwanted Vegetation" November 1988, and research data supplied by "NCAP" and other special interest groups as input to the assessment process form the basis for the following discussion of environmental consequences. Only the consequences of alternative 1, which has been modified in the decision 1-A, are summarized in the following paragraphs. The environmental consequences under alternative 1A are judged to be acceptable when implemented within the constraints of the project design features.

Air Resource

Local air quality may be temporarily affected through volatilization or spray drift when herbicides are used. Standard operating procedures that include limiting application time to certain weather conditions, droplet size and height above the ground when spray is released, are expected to keep potential adverse effects within acceptable levels.

Impacts of prescribed burning were assessed against the requirements of the Federal Clean Air Act. National ambient air quality standards are not expected to be exceeded under the proposed action. There is a probability of some smoke intrusion into designated class 1 areas where protection of visibility is a concern. Emphasis on burning techniques that tend to reduce emissions, as well as compliance with the Oregon Smoke Management Plan, will however minimize adverse impacts to acceptable levels.

Soils Resource

Manual vegetation control methods are not expected to cause any substantial impact on the soil resource.

Mechanical vegetation control will adversely affect soil productivity through compaction and surface soil erosion. Standard operating procedures and mitigating measures will keep productivity losses to less than 6 percent on the acres treated.

Prescribed burning can cause some nutrient losses in both the short run (2-3 years) and possibly long term and some surface soil loss through erosion. BLM burning practices in terms of timing, fuel loading and ignition technique will minimize soil impacts.

The impacts of chemical methods of vegetation control on soil productivity are unclear. Some soil micro organisms help decompose herbicides and others are adversely affected. Soil characteristics play a role in the behavior of herbicides as they move into the ground.

Long term soil productivity impacts from prescribed burning and herbicide use are unknown.

Water Resources

Manual vegetation control methods may increase the nutrient base in some streams for a short time, however, no significant adverse impacts are anticipated.

Mechanical vegetation methods may increase sedimentation. However, standard operating procedures will minimize adverse impacts.

Prescribed burning could cause increases in sedimentation, leaching of nutrients and increased runoff during storms. Impacts are expected to be short term (I-5 years) and within acceptable levels.

Chemical methods have the potential to affect the quality of both surface and ground water. The greatest hazard for surface water contamination is presented by drift resulting from aerial application. Given BLM's standard operating procedures that require the use of non-treated buffer strips adjacent to water, restriction on equipment, application rates, droplet size and timing of application it is unlikely that significant impacts to surface water quality would occur based on BLM water samples near sprayed units. BLM would likely be within EPA recommended limits for water quality. The hazard of ground water contamination from leaching is judged to be low because the forest environment in which it is being applied has little static groundwater and applications are infrequent and at low levels. Potential leaching through soil to groundwater aquifers will be minimized through standard operating procedures and mitigation measures used to design projects.

Vegetation

A primary impact of proposed treatment methods is to suppress growth and survival of plant species competing with planted conifers for moisture, nutrients and sunlight. The significant impact is an increase in

conifer survival and growth leading to a high level of timber production. These impacts are estimates subject to uncertainty, and any long term adjustments will be recognized as new resource management plans are developed or are supplemented with new information.

Other treatments are directed at maintaining roads in a safe driving condition, protecting facilities, managing recreation sites and enhancing wildlife habitat.

No plant species would be eradicated. Sprouting, suckering vegetation such as vine maple and salmonberry would increase in density if hand cut.

Threatened and endangered plant species will be protected when identified on proposed treatment sites.

Effects on off site vegetation (including agricultural crops) will be minimized through site specific standard operating procedures and mitigation measures developed in accordance with the guidance herein.

Animals

Moderate adverse impacts on terrestrial wildlife could occur in the form of short term reduced populations and diversity. Short term benefits would occur in the form of increased food supplies for some species. Game fish populations will not be adversely impacted. Threatened and endangered species will be protected.

Data on the toxic effects of herbicides to wildlife is limited. However, the evidence indicates an overall low toxicity to wildlife. Uncertainty exists in terms of sublethal long term effects on common vertebrate wildlife and direct toxic effects on microorganisms in the soil or water and on the surface of the forest floor or flora. The relationship of these potential impacts to forest nutrient cycling is unknown.

Cultural Resources

Adverse impacts from prescribed burning and mechanical clearing could occur to undiscovered archaeological sites. However, cultural resource surveys would precede proposed activities and mitigating measures will be taken to minimize adverse impacts if sites are discovered.

Recreation and Visual Resources

No significant adverse impacts are expected from vegetation management practices.

Special Areas

Potential adverse impacts to special areas such as research natural areas, recreation trails and areas of critical environmental concern exist from the risk of prescribed fire getting out of control and from drift due to aerial application of herbicides. These risks, however, are within acceptable levels under the conditions in which these practices are proposed for use.

Human Health

Following is a summary of potential human health impacts by vegetation management method.

Manual

In general, members of the public are not at risk from manual methods. BLM or contract worker injury rates reflect a relatively safe work situation although the work is considered above average in terms of hazard. Training, instruction, protective gear and supervision serve to mitigate potential adverse impacts. Most of the accidents will be strains and bruises (about 50 percent) and the least likely event is a fracture (about 5 percent) of the cases reported to the Oregon State Accident Fund.

Mechanical

Risks to the general public from mechanical methods are negligible. The risk of injury to BLM or contract workers can be minimized by training, instruction, safety gear/practices and supervision. Injuries will be rare although ranging in severity from fatal to a sprain.

Prescribed Burning

Prescribed burning presents human health risks to the public and BLM or contract workers due to the risk of escape, direct physical injury to workers on the site, chemical or particulate injury from the smoke and cancer risk from chemical compounds produced from burning forest residues including vegetation previously treated with herbicides.

Data indicate that the risk of escape is 1 in 250 for controlled burns and that the average escape is less than 10 acres. There is no data on public health impacts from such escapes.

Worker injury data suggest one minor injury for every 500 acres burned and one disabling injury for every 7,500 acres burned.

Particulates carried on smoke from burning are not expected to significantly affect human health. Smoke management plans and burning techniques will minimize adverse impacts. Recent concerns about human health effects from combustion products, prompted an analyses which was based on an assumption of exposure to smoke over 70 continuous years. That analysis concluded that the probability of contracting cancer is 1 in 3,000. However, there is considerable uncertainty associated with the analysis and further research is needed.

Biological

The risk of human health impacts from grazing cows, sheep or goats for vegetation control results from domestic water contamination from fecal matter or animal borne sources. The risk is judged to be minimal.

Herbicides

BLM proposed to use 10 herbicides in the FEIS. Two of the proposed herbicides, (Diuron and Fosamine) were judged by University of Washington's qualitative assessment team to lack sufficient quality research data on human health effects to make a quantitative assessment of potential adverse effects. A quantitative human health risk assessment for these two chemicals was done using surrogate herbicides by the firm, Labat-Anderson, who disagreed with the University of Washington results. BLM has decided to use the qualitative risk assessment results generated by the University of Washington as described in appendix "H" of the U.S. Forest Service 1988 FEIS on managing competing and unwanted vegetation as another factor in its decision making process. Based on the assessment results and the availability of alternatives, these two chemicals are not proposed for use.

In addition, BLM incorporates by reference into its decision making information base the component of the U.S. Forest Service 1988 FEIS, (Managing Competing and Unwanted Vegetation) entitled "Characterization and Management of Risk." Excluded from incorporation are references to Forest Service manuals, Forest Service proposed mitigating measures, handbooks and any laws and regulations which apply only to the Forest Service. BLM also incorporates only that material relating to the 10 herbicides it considered for use from the 16 considered by the Forest Service.

The following is a summary of potential human health hazards associated with the use of the herbicides proposed for use.

Cancer Risk

Our judgement is that the cancer risk to the public from the program proposed herein is insignificant and indistinguishable from cancer risks to which the public is generally exposed. Public cancer risks from the programs are estimated to be less than one in one million.

Herbicide workers are at greater cancer risk than the public under the various scenarios analyzed for 2, 4-D, Atrazine, Asulam, Picloram and Glyphosate.

Heritable Mutations

No human studies are available that associate any of the proposed herbicides with heritable mutations.

Tests on rodents indicate mixed results, both positive and negative, for Atrazine, 2,4-D and Picloram.

The worst case assumption is that the risk of heritable mutations from the proposed herbicides is no greater than the estimates of cancer risk.

Synergistic Effects

Synergistic adverse effects could occur as a result of exposure to two or more herbicides. There is data available that substantiate that pesticide combination or combinations with other toxic substances could be synergistic. However, it is very unlikely that synergistic effects could occur as a result of exposure to two or more herbicides proposed for use.

Hyper-Sensitive Individuals

Hyper-sensitive individuals include children and/or adults who may have preexisting diseases, certain diet characteristics, genetic conditions, medical conditions or other unknown factors that contribute to the condition. Sensitive individuals comprise about 15 percent of the total population, and the probability of exposure to the general public from BLM operations is low.

Inert Ingredients

EPA has determined that the inert ingredients in the herbicide formulations proposed for use do not support a specific concern for toxicity or risk except for the Kerosene used in 2,4-D and Triclopyr. It is believed that the risk analysis on the active ingredients sufficiently characterizes this risk.

Table 1[1]–Summary of Potential Toxic Effects (Health Hazards) for Ten Herbicides and Two Carriers

Herbicide	Acute (Poisoning)	System (General Health)	Cancer or Mutagenic	Reproductive/ Developmental
2,4-D	Low	High	Low/Moderate Insufficient Info.	High
Glyphosate	Negligible	Low	Mod./Insuf. Info.	Moderate
Picloram	Negligible	Low/Mod.	Mod./Insuf. Info.	Low/Moderate
Triclopyr	Low	Moderate	Moderate	High
Atrazine	Low	Low/Mod.	Moderate	High
Hexazinone	Negligible	Low/Mod.	Low/Insuf. Info.	Low/Moderate
Fosamine	Negligible	Insuf. Info.	Insuf. Info.	Insuf. Info.
Dicamba	Low	Low	Low/Insuf. Info.	High
Asulam	Negligible	Low	Moderate	Moderate
Diuron	Negligible	Insuf. Info.	Insuf. Info.	Insuf. Info.
Diesel Oil	Negligible	Insuf. Info.	Insuf. Info.	Insuf. Info.
Kerosene	Negligible	Insuf. Info.	Insuf. Info.	Insuf. Info.

This table categorizes heath effects according to the compound evaluation system developed by the Food Safety Inspection Service. This table is intended to show the relative maximum inherent toxic effects for a given chemical and indicates only the effects of **very large doses**. Actual and potential exposure from herbicides used in the program, even under worst case conditions, will result in doses which are very much smaller than the doses necessary for the health effects displayed in this table. Data on the specific effects are based on studies detailed in the appendices on human health.

[1]Source: U.S. Forest Service, "Managing Competing and Unwanted Vegetation", FEIS, "Characterization and Management of Risk", page 35

Following is an explanation of the relative differences in the terms used to rank human health hazards.

Legend	Acute Oral LD50 (Mg/Kg of Body Weight)	Systemic Observed Damage to Vital Functions	Mutagenicity Carcinogenicity	Reproductive/ Development
High	25 or less	Irreversible	Mutagenic, confirmed carcinogenic (EPA Class A & B)	Adverse effects in rodents & nonrodents or conclusive in one species
Moderate	25-250	Serious and reversible	Weakly mutagenic, some evidence of carcinogenicity (EPA Class C)	Suspected adverse effects in one species
Low	250-1000	Transient and not permanent test	Weakly mutagenic, negative cancer	No adverse effects
Negligible	Greater than 1000	None	Negative mutagenic and cancer test results (EPA Class D)	

Insufficient Information

[1]bid, page 35

Cumulative Effects

Cumulative effects on workers and the general public have been considered in the exposure scenarios used in the analysis. Backpack applicators are at the greatest risk from cumulative effects.

Conclusions

Two herbicides evaluated for program use, Diuron and Fosamine, are eliminated from the program due to insufficient data to conduct a valid toxicological analyses. The remaining eight herbicides are within acceptable limits of risk if applied according to the requirements on the EPA label and with the standard operating procedures and mitigating measures planned for use in program implementation.

Quality of Information (Data Gaps)

Throughout the environmental assessment process, it was apparent that the quality of information available to use in the process varied considerably.

Several aspects of environmental impacts are still relatively unknown. Furthermore, the knowledge base is constantly growing as new information becomes available. Although the FEIS and data submitted as input to the "ROD" represents a major share of the current knowledge base, it does not represent 100 percent of current and evolving knowledge.

Following is a discussion of specific areas of data gaps and information quality.

Air

Data on the quantities of emissions produced by burning gasoline and diesel oil during prescribed burning are currently unavailable. However, only small amounts of these fuels are used for ignition in prescribed burning.

Minute particles of herbicides may drift through the air for unknown distances depending on application conditions and other factors.

Table 2 - Summary of Relative Health Risks of Alternatives

	Method of Treatment					
Alternative	**Manual**	**Mechanical**	**Burning**	**Biological**	**Herbicide**	**Overall**
1-A (proposed)[1]	I-M	I-H	IT-M	D-L	T-L	IT-M-
1. (all methods)	I-M	I-H	IT-H	D-L	IT-M	IT-M+
2. (emph. herb.)	I-L	I-M	IT-M	D-L	T-H	IT-M+
3. (no burn)	I-H	I-H	N	D-L	T-H	IT-H
4. (lab. intense)	I-H	I-M	IT-H	D-L	T-H	IT-H-
5. (res. - aerial)	I-M	I-H	IT-H	D-L	T-M	IT-M+
6. (no aerial)	I-H	I-H	I-H	D-L	T-H	IT-H
7. (no herb.)	I-H	I-H	I-H	D-L	N	I-H
8. (no action)	N	N	N	N	N	N

Code:

I = injuries
T = toxic effects
D = disease
L = low
M = medium
H = high
N = none

[1]Includes additional emphasis on preventative type treatments for which human health risks are judged to be minimal and where use of prescribed burning and herbicides are reduced.

The herbicide Dicamba may volatilize from soil surfaces, but further study is required to determine the extent of such losses.

Soil

Long-term data on the effects on soil productivity arising from tractor piling or scarification are unavailable.

No research has been published on the persistence of the herbicide Atrazine in Pacific Northwest soils.

No quantitative data exists on the persistence of the herbicide Hexazinone in forest soils.

Data on the behavior in forest soil of the herbicide Fosamine is not available at this time.

Conclusive data on the impacts of herbicides on soil micro-organisms and related soil productivity is not available.

Water

Recent studies done in the state of Oregon have shown pesticides to leach into underground aquifers and domestic water supplies in agricultural areas where pesticide uses are heavy.

The ecological effects of Asulam herbicide on aquatic ecosystems are not known.

Laboratory tests of water samples for pesticide residues may produce varying results between different laboratories due to techniques used, care and handling of the samples, human error and detection capabilities.

Vegetation

The additional increment of timber volume produced on an acre 60 to 100 years after early vegetation control during tree planting and within 10 years thereafter to improve tree survival and growth is subject to considerable uncertainty because it is based on projections of studies done early in plantation life. Comprehensive studies of long term impacts to timber production have not been done.

Wildlife

Diesel oil is often used as a carrier for forest herbicides. Data are insufficient to quantify impacts on animals in the EIS area, but losses are likely to be low.

Toxicity testing to reflect herbicide impacts has been conducted on relatively few wildlife species. This is particularly true for the herbicides Atrazine, Diuron, Glyphosate and Hexazinone. Data on impacts to avian and insects are relatively rare for most of the species.

Human Health

Following is a summary of the qualitative assessment of the quality of data used to assess human health effects.

Manual Methods

Long term health effects have not been studied, but relatively short term effects are well known. Data quality is considered good.

Mechanical

No forest vegetation management experience record exists to use as a data base. Inferences have been drawn from other uses to estimate short term effects. Long term impacts have not been studied. Data quality is considered poor.

Prescribed Burning

Some short term effects on workers and the public can be projected from experience data. However, other short and long term impacts must be extrapolated from studies outside the forestry arena. No data is available on the impacts of burning herbicide-treated vegetation. Data quality is considered poor.

Biological Method

Impacts of biological methods (principally livestock grazing) are drawn by inference because little data exists from actual studies of potential waterborne pathogens or other disease vectors resulting from biological control. Quality of data is considered poor.

Herbicides

The quality of data used in the risk assessment is illustrated in tables 3-4 and discussed in the U.S. Forest Service, FEIS 1989, "Managing Competing and Unwanted Vegetation", Characterization and Management of Risk. In summary:

The quality of toxicity data for drawing inferences about possible human health effects are adequate for 2,4-D and picloram. Studies are of sufficient quality and quantity that estimates of human health are *considered reliable.* New studies are unlikely to change estimates of health effects.

The overall quality of data for asulam, atrazine, glyphosate and hexazinone is judged to be marginal and has useable information for evaluating toxicity. Studies of adequate quality did not vary greatly, but more information would increase reliability. Although new studies may change estimates of health effects, the results of currently available studies are considered moderately reliable.

The quality of data for dicamba and triclopyr was judged to be marginal to inadequate. Some studies of marginal quality provided useful information, but in general studies were inconsistent and some contained flaws. New studies may change estimates of health effects. Therefore, very cautious assumptions were made in characterizing risk.

Data was inadequate for diuron and fosamine. Data quality is considered good overall for the 8 herbicides proposed for use by BLM.

Herbicide Carriers

Diesel oil and Kerosene lacked specific studies on toxicological effects. Data is inadequate.

Economic Conditions

Following is a summary of the major economic impacts (jobs, revenues) by alternatives.

Table 3 Impacts on Employment by Alternative[1]

Change in Employment[2] Compared to the Current Program Direction (1,183 MMBF)

	Direct Employment[2] Private Sector Employment by Source			Employment in Local Gov. Dependent on O&C Revenues	Indirect Employment	Total Employment
	Veg. Control	Tree Planting	Timber Harvest Processing			
Alt. 1 (Intg. Use)	0	0	0	0	0	0
Alt. 2 (Emph. Herb.)	-11	1	-14	-2	-42	-68
Alt. 3 (No Burn)	52	-8	-308	-54	-521	-839
Alt. 4 (Lab.1 Int.)	92	0	-21	-3	112	180
Alt. 5 (Res. Aerial)	5	-0	-42	-7	-72	-116
Alt. 6 (No Aerial)	176	-9	-49	-8	181	291
Alt. 7 (No Herb.)	231	-30	-889	-159	-1,389	-2,236
Alt. 8	-117	-147	-2,569	-461	-5,238	-8,432

[1]Modern transportation allows forest workers, logs and chips to be moved economically over long distances. As a result, economic impacts of vegetation management and timber harvest in a particular timber shed are not necessarily concentrated within a particular county or adjoining counties. Therefore, impacts shown in this table are regional and not specific to local areas.
[2]Employment is measured in terms of full time equivalent, i.e., two jobs of 6-month duration equal one full time equivalent.

Source: Computations by EIS staff.

Table 4 Projected Changes in the Distribution of O&C Payments From the Western Oregon SYU's[1] to Counties By Alternative

Change in O&C Disbursements (Compared to the Current Program)

Alternative	1	2	3	4	5	6	7	8
Percent Change in Dollars (000)[1]	+0.0%	-0.2%	-3.7%	-0.3%	-0.5%	-0.6%	-10.7%	-31.0%

[1]Based on 1987,88 average timber sale prices and 1,183 MMBF.

Chapter 5 Program Rationale

Alternatives

The alternatives considered and evaluated in the environmental impact statement are as follows;

Alternative 1A

Alternative 1 requires an integrated program of vegetation control methods to achieve resource management goals and permits the use of all approved tools known to be effective in meeting resource management goals. In modifying this alternative, the emphasis on treatments permitted under this alternative has been priortized to focus first on prevention, secondly on effective alternatives to herbicides and thirdly on approved herbicides. Also proposed is the modificatnon of the prescribed burning program to reduce undesirable emissions . Alternative 1A is the environmentally preferable choice available to BLM. This alternative provides the flexibility to meet resource management goals and still provide a high level of protection to human health and safety.

The vegetation management program implementation standards as set forth herein are intended to reduce adverse environmental impacts and human health hazards while meeting the Bureau's goals for timber production, transportation system maintenance, recreation site maintenance, and wildlife management.

Alternative 2

Alternative 2 emphasizes the use of herbicides over other available techniques. This alternative was not selected because of public perceptions about human health hazards associated with toxic chemicals and the results of the qualitative and quantitative human health assessments contained in the FEIS.

Alternative 3

Alternative 3 proposes the elimination of prescribed burning, while retaining the use of all other tools as substitutes. This alternative was rejected because it resulted in a 42 percent increase over alternative 1 in the use of herbicides as a substitute treatment, and because timber production would be reduced by 44 million board feet annually.

Alternative 4

Alternative 4 emphasizes the use of effective labor-intensive methods. This alternative was not selected because it resulted in the increased use of backpack applications of herbicides over alternative 1. Analysis has shown backpack applications of herbicides to be a higher relative risk to human health than other application methods. Cost of implementation for alternative 4 was also a factor in the decision.

Alternative 5

Alternative 5 prohibits aerial application of herbicides within 1/4 mile of residences or domestic water diversions unless authorized by the residents or water users. This alternative was rejected because analysis indicated some increases in backpack applications would be required that have a higher relative risk to human health than aerial applications. Flexibility to vary the width of a protective buffer is retained under the selected alternative.

Alternative 6

Alternative 6 proposes the use of all vegetation management treatments except aerial application of herbicides. This alternative was rejected because it requires an increase in backpack applications over alternative 1 and because timber production would be reduced by 7 million board feet annually.

Alternative 7

Alternative 7 proposes to use all methods of vegetation management except herbicides. This alternative was rejected because resource goals for timber production are reduced by 127 million board feet annually.

Alternative 8

Alternative 8 proposes no management of competing vegetation. This alternative is rejected because it fails to meet management goals for timber production. Timber production would be reduced by 367 million board feet annually. This alternative also fails to meet management goals for wildlife management and road and facilities maintenance.

Chapter 6 Issues Identified Through Public Participation

During July 1982, public scoping meetings were held throughout western Oregon. Various concerns relating to the environmental impacts of vegetation management on air quality, soils, water, vegetation, fish/wildlife, social factors, economic conditions, human health and ecology were raised. These concerns are discussed in the environmental consequences section of this proposed Record of Decision. Specific scoping information is located in Appendix-A. of the FEIS.

The 1982 scoping process identified herbicide use and prescribed burning as controversial vegetation management methods because of potential human health effects. This concern resulted in a 1986 supplement to the draft EIS. A review of the USDA Forest Service Vegetation Management EIS scoping which occurred in 1986 indicated no new issues but again stressed herbicide use and prescribed burning as controversial due to potential human health effects.

In February 1989, BLM issued the FEIS for a 60 day comment period as a means to gather additional public input.

Environmental issues identified in the 53 letters received in regard to the FEIS, again focused on human health concerns. However, additional concerns were raised regarding wildlife, soil, water and air quality impacts. These concerns were considered in formulating the proposed decision.

Other input to resolving issues consists of the mediation document agreed to by the U.S. Forest Service Region 6 and special interest groups and appended to the Forest Service, "Record of Decision" of November 1988 for their proposed program for managing competing and unwanted vegetation. The mediation document addressed a number of procedural issues that have also been considered in preparing the "Record of Decision".

Chapter 7 Response to Comments on the BLM February 1989 FEIS, Entitled, "Western Oregon Program - Management of Competing Vegetation"

BLM received 53 letters commenting on the FEIS. More than 15 letters expressed opposition to any use of herbicides. Another 15 letters expressed support for alternative 1. Two letters were opposed to any form of vegetation management. Most of the remaining letters suggested some modification or the replacement of the proposed action. Two letters proposed a supplement to the FEIS before a Record of Decision is prepared.

As can be seen by the proposed "Record of Decision", BLM has modified its proposed action in alternative 1 to emphasize the use of prevention strategies, reduce emissions from prescribed burning and use alternatives to herbicides while retaining the use of eight herbicides as the last priority for consideration. Two herbicides, Diuron and Fosamine, were eliminated from the proposed action.

The responses to the following comments are intended to clarify the strategy used in developing the proposed decision.

1. Comment: The use of herbicides and slash burning should be curtailed. They should be used only where other methods do not work.
Response: The proposed "Record of Decision" proposes a reduction in prescribed burning and emphasizes the use of non-chemical vegetation control methods.

2. Comment: Take advantage of coordinated resource management planning memorandum signed on January 5, 1989, with the National Association of Conservation Districts.
Response: BLM will work with other agencies in planning and implementing its vegetation control program. See section on "interrelationships" in the proposed "ROD".

3. Comment: Do not use "TORDON" where it will pose a contamination threat to irrigation water, drinking or other domestic water uses. Do not use "TORDON" without professional assistance on proposed treatment sites to evaluate soils and hydrologic characteristics in relation to "TORDONs" ability to move in water and its persistence in soils with low organic matter/low rainfall. Do not use on areas to be grazed by livestock. (Anecdotal evidence of significant damage to seed potato crops and research reports on the phytotoxicty of TORDON were submitted).
Response: BLM standard operating procedures will require a trained soil scientist and hydrologist to review proposed "TORDON" treatment sites to evaluate the potential for water contamination and long term soil persistence as part of the decision making process.

4. Comment: Recommend alternative 8 (no vegetation management) because other alternatives destroy the diversity of the forest.
Response: The analysis showed there was a reduction in forest diversity as a result of vegetation management and this was acknowledged in the Environmental Consequences section of the EIS.

5. Comment: BLM did not substantially incorporate experience with non-chemical methods since 1983.
Response: BLM has cited research made available since 1984 on alternatives to herbicides. Actual field experience is reflected in table 1-4 (first row), table 3-18 and table 3-21 which show a different impact to timber harvest levels and employment than was described in the DEIS. See comment number 84.

6. Comment: BLM relies on test data deemed unacceptable to EPA in attempting to assess risks to human health.
Response: The court has made it clear that BLM should not rely solely on EPA standards in making its human health risk assessment. It is for this reason BLM contracted with Labat-Anderson and others to independently assess potential human health effects.

7. Comment: BLM should issue a supplemental EIS incorporating the best recent (post-1983) data in its risk assessment.
Response: BLM issued a 1986 supplement to its 1983 DEIS that addressed current information relating to the human health risk issue. The FEIS incorporated new information on the risks of prescribed burning and environmental consequences of alternatives. Other information received in **Response** to comments in the FEIS is being considered in preparing the proposed decision. The U.S. Forest Service region 6 qualitative risk assessment has been incorporated by reference in the proposed "Record of Decision".

8. Comment: Inert ingredients could be more harmful than active ingredients because they are poorly tested.

Response: BLM plans to use herbicides that contain inert ingredients that EPA has determined do not support a specific concern for toxicity or risk. An exception is Kerosene. An analysis of petroleum distillates was included in the EIS.

9. Comment: Concerned about effects of herbicide on well water.
Response: Our analysis showed forest applications of herbicides at low rates applied 1 or 2 times in 60-80 years and occurring mostly in remote locations did not pose a threat to well water.

10. Comment: How do actual (1982-1988) direct costs per acre (including herbicide use) compare to the 1982 direct costs per acre quoted in appendix B on page 234?
Response: BLM has had no cost experience for the use of herbicide since 1983-1984. An update of estimated annual program costs are given in table 1-2. Per acre costs since 1984 for individual practices are available in BLM district files.

11. Comment: Has BLM ever paid any health effects claims relating to the use of herbicides?
Response: BLM has not paid any human health effects claims relative to the use of herbicides.

12. Comment: What effectiveness multipliers were used to judge relative effectiveness of treatments?
Response: Page 235 of the FEIS describes the assumptions used in the analysis. The ratio of effectiveness assumed was 1 to 1, although the Forest Service ratio of 1.1 herbicide treatments to 1.8 manual treatments may be more appropriate for some treatment types.

13. Comment: How does the FEIS analyses illustrate considerations of cost effectiveness?
Response: See FEIS page 13, table 1-2, for a comparison of program costs.

14. Comment: Which alternative has the best benefit/cost ratio, when benefit is measured in MMBF of annual cut and cost is program cost?
Response: The analysis suggested provides an incomplete answer because it foregoes significant employment benefits associated with the MMBF of annual cut as described on table 1-4 (summary of impacts) on page 25.

15. Comment: What would happen if BLM did not assume unlimited funding?
Response: BLM would reduce its program of timber sales output if funding were a chronic problem to achieve the timber program goals in the proposed action.

16. Comment: How many acres has BLM accumulated untreated as a result of budget constraints and assumed ineffectiveness of non-chemical treatments?
Response: The present outlook for FY90 shows a total need (not funded) of 67,836 acres of plantation maintenance, 72,244 acres of site preparation, 63,201 acres of plantation release and 81,950 acres of precommercial thinning.

17. Comment: Under the "no herbicides" alternative (Alt. 7), how much would the program costs need to be increased to achieve the annual cut level of the preferred alternative?
Response: The analyses of alternative 7 in the EIS has demonstrated that effective alternatives to herbicides only exist to a limited extent and increased funding alone will not enable BLM to achieve its stated annual timber harvest goals.

18. Comment: What is the total number of acres (historical sum and yearly totals) BLM has treated for vegetation problems? (specified according to management methods)
Response: Vegetation treatment levels vary from year to year depending on the amount of logging activity that results in reforestation needs, available budgets and other factors. Following is a historical perspective.

	Acres Treated		
Treatment type	1983	1987	1988
Mechanical	12,043	2,207	3,020
Manual	8,280	8,906	11,984
Chemical	18,481	- 0 -	- 0 -
Burning	13,963	17,923	12,814

19. Comment: How many human exposure incidents have been reported in connection with the above programs? (specified according to year and management methods)

How many negative health effects have been reported from the above incidents? (specified according to year and management methods)
Response: BLM has no verified reports of adverse human health effects from exposure incidents resulting from its herbicide application programs. Injury records from non-herbicide treatment methods were analyzed in the FEIS on page(s) 80 and 81.

20. Comment: Why doesn't the section "Doses to Workers and the Public from Accidents" (pages 5-6, Supplement) contain the kind of probability projection BLM has made for the preceding section (page 5, Supplement)?
Response: Data are not sufficient to estimate probabilities of accidental doses, particularly to the public.

However, those probabilities should be lower than those estimated for routine extreme doses (i.e., less than 1 in 100,000).

21. Comment: How can BLM make the statements on page L-73 of the Supplement (Risk to the Public Under Accidental Scenarios") when actual exposure incidents that are worse than the hypothetical examples have *actually* occurred?
Response: BLM has no record of accidents as a result of its operations or similar operations that are worse than the hypothetical examples given in the EIS.

22. Comment: What are the studies and research referred to on pages 2 and 18 of the Supplement?
Response: The studies referred to are exposure and toxicity studies on specific pesticides that would fill gaps in the scientific knowledge about those pesticides.

23. Comment: How did BLM monitor herbicide projects regarding drift and protection of buffer strips and water, and how have these data been analyzed?
Response: Results of BLM spray monitoring of water quality is presented on page 69 of the FEIS. Procedures to conduct the analysis are contained in Appendix "D", pages 237, 238.

24. Comment: What operational data have been taken and analyzed in regard to growth rates and stocking on plantations? (What years do these data cover?)
Response: BLM conducts stocking surveys of plantations directed primarily at determining survival rates on an annual basis. This data is available at each district office.

25. Comment: What data have been taken on operational experience with vegetation management during the years the injunction on herbicide use has been in force, and how have these data been analyzed?
Response: Stocking surveys have been taken on treated sites. The data has been analyzed on a site specific basis to determine if BLM stocking standards have been met.

26. Comment: How can BLM justify using 1983 as "existing situation"?
Response: Since 1983 was the last year BLM was able to use herbicides for vegetation management, it represents the situation reflective of an integrated pest management program. Although BLM use of herbicides has been constrained by the injunction, the 1983 vegetation management program represents the continuation of existing management direction on "No Action" alternatives.

27. Comment: Why doesn't the EIS discuss the "backlog" of acres that (according to BLM statements in the media) need herbicide treatment?
Response: The EIS addresses the potential impacts of a representative annual program. BLM's program will be based on site specific environmental assessments that will determine if the FEIS is adequate or needs to be supplemented.

28. Comment: If such a backlog does exist, how does it relate to Table 1-2 (which has changed only slightly from the DEIS)?
Response: Tables 1-2 reflects the representative program proposed for implementation based on 1987 data.

29. Comment: Since BLM claims that plantations are currently approximately 95% stocked, why is it necessary to change the current program? (If BLM holds it is necessary to change (and use herbicides), unsatisfactory stocking should be disclosed and explained.)
Response: The current program (without herbicides) has resulted in treatment of fewer acres with a given budget and no treatment or unsatisfactory treatment on many sites resulting in stocked but unestablished plantations.

30. Comment: How will recent TPCC changes which increase managed acres affect the program in the EIS?
Response: Timber production capability classification criteria assume the availability of herbicides as one of the vegetation management tools. These acres will be included within the scope of the program analyzed in the new resource management plans now being formulated for implementation in 1993.

31. Comment: Biological controls are at a minimum and need to be increased.
Response: BLM will use biological controls to the maximum extent where they are proven to be effective and environmentally acceptable.

32. Comment: There are no alternatives which make clear choices for worker safety and protecting the existing ecosystem.
Response: Worker safety is a first priority for all alternatives and all alternatives address varying levels of ecosystem protection.

33. Comment: Your alternatives showed a fixed number of acres for each management technique, while your narrative opts for site specific changes in management prescriptions.
Response: The fixed acreage figures given were necessary to do the assessment of environmental

impacts. Before program implementation, a separate site specific environmental assessment of each tract will be done to determine the best method for a given site and actual treatment acres.

34, Comment: There is no quantification of the effectiveness of the various proposed management techniques (except table 1-1A, page 9).
Response: Quantification or projection of effectiveness is based on research as cited in the EIS pages 68-70.

35. Comment: I believe the agency should seriously consider eliminating the proposed practice of spray and burn.
Response: The analyses showed that, by postponing the burning of herbicide-treated vegetation for several months to one year, the herbicide has biodegraded to the extent that little or no herbicide residue remained.

37. Comment: Discuss BLM policies regarding the treatment of commercial hardwoods.
Response: BLM sells commercial hardwoods that are of marketable size for firewood, pulp, sawlogs or other uses as decided by the purchaser. Hardwoods of non-marketable size competing with conifers for survival and growth, are subject to control by a variety of practices.

38. Comment: Proposed buffer strips adjacent to spray units are too small. See Forest Service FEIS pages 406-409 in Appendix 1B.
Response: The reference cited and the research material it discusses have been reviewed. Buffer widths specified in the "Record of Decision" will be followed as a minimum. BLM acknowledges the occasional occurrence of herbicide in streams and finds the monitoring results to indicate levels of contamination at acceptable levels with the buffer strips used as described in the Record of Decision.

39. Comment: BLM water monitoring in the past has been grossly inadequate.
Response: BLM water monitoring results are shown on page 69 of the FEIS. Water monitoring guidelines which are described on pages 237-238 (Appendix D) stress monitoring where contamination might occur.

40. Comment: Cumulative effects analysis is lacking or incomplete in all areas of BLM management.
Response: BLM addresses potential cumulative effects of herbicide use on page 115 of the FEIS. Backpack applicators are at greatest risk from cumulative effects.

41. Comment: There is a discrepancy between the FEIS data and "NCAP" position papers (FS-EIS-Appendix 1B, pages 436-472) regarding the persistence and life of chemicals in the soils and vegetations.
Response: BLM has reviewed the "NCAP" position papers cited and agrees to distribute current information packets to the public containing relevant information about each herbicide it proposes to use. This effort will be coordinated with the U.S. Forest Service.

42. Comment: Monitoring results should be quantified in terms of number of chemicals applied over each season and residues found in various non-target plants, fish, wildlife and water.
Response: BLM will quantify environmental impact data on a site specific basis as monitoring data becomes available.

43. Comment: EPA registration process/requirements have not been completed for any of the chemicals proposed for use.
Response: BLM acknowledges the data still required by EPA to complete the registration for each chemical and does not rely solely on EPA registration in its environmental analysis.

44. Comment: Economic assessment should be updated using a comparison of employment timber sale income and expenditures over a series of years to illustrate that timber revenues fluctuate and some jobs are being lost to automation in spite of increased timber harvest.
Response: BLM acknowledges the trends to automation and reduced employment per unit harvested as a consequence.

45. Comment: I would be happy to see herbicide used as a last resort.
Response: BLM proposes to use herbicide only as the last priority after considering preventative treatments and non-chemical alternatives.

46. Comment: BLM's proposed program is too limited in terms of the chemicals proposed for use, especially for road maintenance. Would like to see Simazine, Bromacil, Oust and Amitrole included.
Response: The list of suggested chemicals are discussed in the U.S. Forest Service FEIS and would be analyzed for use on BLM lands through the NEPA process of tiering or incorporating by reference if they are proposed for use on BLM lands.

47. Comment: Update costs and revenue data used in the analysis to reflect 1987-88 experience.
Response: Updated data has been developed for use in the decision making process.

48. Comment: The description of alternative 1 suggests the use of chemicals for precommercial thinning whereas tables 1-2 indicate that no precommercial thinning will be done with chemicals. This discrepancy needs to be clarified.
Response: BLM does not plan to use chemicals for precommercial thinning as part of its proposed action.

49. Comment: BLM has not integrated the proposed vegetation management program into its upcoming ten year resource management plan. These program decisions are related.
Response: BLM recognizes the program relationships. Information from the vegetation management program will be used to help describe and analyze the current management situation and future opportunities. The RMP process will determine management objectives and direction that will guide implementation of the vegetation management program specifically when and how it will be applied.

50. Comment: There are many documented cases of miscarriages and birth defects linked to herbicide sprays.
Response: The BLM analyses did not find any scientifically documented evidence showing a clear link between the cause of birth defects and miscarriages and forest uses of the herbicides proposed in its program.

51. Comment: An adequate implementation plan for integrated pest management is missing.
Response: The proposed "ROD" contains an implementation strategy formerly described in the FEIS as appendix "D" and now included as Appendix "A" of the "ROD".

52. Comment: Do not use chemicals in the Deadwood Creek Watershed!
Response: BLM will, through a site specific environmental assessment, evaluate any potential adverse impacts to watershed values and act to protect them if chemicals or other techniques are eventually proposed for use in the watershed.

53. Comment: Potential impacts of Picloram (TORDON) to non-target plants because of its known persistence and ability to migrate through soil into ground water, is not addressed in the FEIS chapter 3. See Pesticide Fact Sheet for Picloram dated October 24, 1988.
Response: BLM has noted the foregoing fact sheet and other data relevant to TORDON and has proposed that site specific analysis include evaluations by a hydrologist and a soil scientist whenever TORDON is proposed for use.

54. Comment: We recommend building some flexibility into the document so new treatments (herbicides) can be adopted with a minimal degree of revision.
Response: Requirements to add new herbicides include the preparation of an environmental assessment or another EIS if appropriate (see FEIS page 23).

Does "weed control" mean noxious weed control?
Response: Weed control does refer to noxious weeds as described in the BLM Northwest Area Noxious Weed Control program.

56. Comment: The description of purpose and need does not list vegetation control for purposes of animal habitat manipulation.
Response: The FEIS is not clear on this point. One objective of our vegetation management program (EIS & ROD) is wildlife habitat manipulation.

57. Comment: Under the Water Resources section, we do not believe headwater stream temperature would be most likely to rise under the aerial spray alternatives, because unsprayed buffer strips are required under the Oregon Forest Practices Act (OFPA).
Response: OFPA does not require unsprayed buffer strips on all headwater streams. Most of these streams are dry during the summer months when stream temperature is important.

58. Comment: Under the Animals and Terrestrial Vegetation sections, it is not clear that diversity would decrease under Alternatives 1-5 due to a shorter period in early seral stages. A shorter period increases the effective age of the plantation. This should shorten the rotation age (or age when a given volume per acre has been achieved). The earlier potential harvest age would then allow earlier harvesting, putting more acres back into early seral stages.
Response: BLM projected harvest ages are generally based on culmination of mean annual increment, but not when a given volume per acre is achieved. The diversity rationale seems reasonable, although seral stages in all cases would be truncated thereby reducing habitat in those species requiring late seral stages.

59. Comment: Table 1-1a would be more useful if goals of herbicide use were identified. For example, diuron and dicamba are not used in silviculture but are used in right-of-way management. Such differentiations are important to avoid misconceptions.

The use of vegetation zone designations implies that efficacy of herbicides varies by zone. This is not generally the case, and we recommend deleting the zone designations.

The table shows herbicide efficacy in terms of the season when the materials are most effective. Actually, many products must be used when they are less than maximally effective because of a tendency to injure desirable species. For example, red alder is most sensitive to glyphosate in June, but it is treated in September for conifer release to avoid damaging the conifers.

Other items that need correction in the table include: 1) fosamine is no longer used and should be removed from the table; 2) triclopyr and picloram are improperly listed as effective on salmonberry; and 3) the fact that triclopyr is far more effective on tanoak than other products should be noted.
Response: These suggestions have been adopted.

60. Comment: As spray technology develops, OFPA rules concerning buffer strip width, temperature, and relative humidity requirements may be modified. We recommend some provision for flexibility in the event of such changes in the rules and guidelines.
Response: BLM is committed to meeting or exceeding all OFPA rules at all times.

61. Comment: Table 1-3 should be modified to reflect the following: 1) delete fosamine; 2) triclopyr amine is not used normally for ground spraying for site preparation; 3) a rate per acre for injection of triclopyr amine (or other injected herbicides) should not be specified because it varies too much; 4) triclopyr ester is no longer used in the fall; 5) dicamba application should be restricted to roadsides because it has too much residual soil activity for use in plantations.
Response: The suggestions presented are adopted in the proposed "Record of Decision."

62. Comment: One way to handle threatened and endangered plant species could be to mark or cover them so they are protected, then release the stand in which they occur. This option should be included.
Response: The comment describes a "standard operating procedure" to protect plants in the event herbicides are made available and is incorporated into project design features.

63. Comment: The FEIS should be withdrawn because relevant data from existing plantations needs to be assembled and analyzed.
Response: Table 1-4 (FEIS pages 24-25) described impacts on timber harvest based on district experience as analyzed in 1987.

64. Comment: The environmental analysis is incomplete because it does not consider the full sequence of intensive management practices.
Response: The analysis incorporated those practices relative to a thorough analysis of environmental impacts of the proposed vegetation management program.

65. Comment: Operational data is missing on the need and effectiveness of past treatments.
Response: Operational data is available at each district office. The analysis included a review of operational results through 1987.

66. Comment: What new information on manual treatments has been gathered since the ban on herbicides?
Response: As cited in the FEIS, information on the effective times to cut Red Alder and the type of soils for hand pulling of plants has been gathered.

67. Comment: What monitoring has been done and what are the results for past use of herbicides?
Response: BLM results of water monitoring are discussed in the EIS.

68. Comment: How many acres are in the release and site preparation backlog state wide? Medford District?
Response: Most recent estimates (for FY 1990) are 63,201 acres of release treatments and 67,836 acres of site preparation. Some of this acreage will be treated as part of the normal base program and is therefore not considered backlog. Individual district acreages that comprise the total are available at each district office.

69. Comment: How are these acres accounted for in the treatment estimates? Table 1-2, page 13.
Response: Table 1-2 represents a typical annual treatment scenario which BLM would implement if authorized. The foregoing acreage would be treated as part of this annual program.

70. Comment: Why has BLM allowed a backlog of untreated acres to accumulate?
Response: BLM has lacked funding and effective alternatives to herbicides.

71. Comment: Has the opportunity for effective treatment been missed?
Response: In some cases, BLM must start over with site preparation and reforestation on units that have failed due to lack of treatment.

72. Comment: Will there be allowable harvest reductions if no treatment is forthcoming?
Response: BLM will lower its estimates of timber output if vegetation management is not utilized as a standard practice in reforestation (see alternative 8).

73. Comment: Hasn't the cost of manual treatments gone down and herbicide treatment cost gone up since the 1984 injunction?
Response: No post 1984 experience with herbicide costs is available. Manual costs vary widely and are still within the ranges described in Appendix B of the FEIS.

74. Comment: Why weren't the costs of accidents, training of personnel, and EIS litigation included in the "Analysis of Program Costs"?
Response: These costs are generally viewed as one-time costs.

75. Comment: What differences in effectiveness were assumed between chemical and other methods?
Response: Guidelines for the analysis were to assume no more manual treatments per acre than that experienced with herbicide.

76. Comment: BLM's analysis is unclear regarding compliance with Goal 17 of the state coordinated land use planning program.
Response: BLM will comply with the state land use planning goals on a site specific basis through coordination with the state agencies and local governments. (See "ROD", Appendix B).

77. Comment: The proposed program does not include a comprehensive system to monitor the full impacts and results of the program over the long term.
Response: The environmental analysis process coupled with the Bureau's 10-year planning cycle permits an assessment on a (decadal) basis. Annual monitoring results will, in total, play a role in assessing long term impacts. Plans are normally redone about every 10 years. Each revision reflects new information gained from monitoring or research since the last plan.

78. Comment: The conclusion on the hazards to ground water is based on incomplete or inaccurate information. The potential impairment of water for the use of irrigation resulting from the migration of "TORDON" through the soil should be recognized.
Response: Forest uses of herbicides have not resulted in contamination of ground water. BLM has special precautionary measures that must be followed if "TORDON" is proposed for use.

79. Comment: Surface water temperature standards established for various river basins by ODEQ should be met by BLM when implementing its proposed program.
Response: BLM will comply with all state water quality standards.

80. Comment: The new federal air quality standards for PM10 should be addressed in the FEIS references to total suspended particulate air quality.
Response: New air quality standards have been considered in the decision to reduce prescribed burning.

81. Comment: BLM must describe the selection criteria that will be used to decide on the best treatment method for a site specific area.
Response: BLM has addressed the Selection Criteria in the proposed "ROD".

82. Comment: CEQ instructs agencies to issue Supplemental EIS's, as a rule of thumb, if an EIS has not yet been implemented and is more than 5 years old. BLM issued its initial DEIS in 1983 and supplemented it in 1986 with a quantitative assessment of potential human health risks associated with the use of herbicides, but failed to revisit the range of alternatives and/or new information relevant to the evaluation of alternatives.
Response: The proposed "Record of Decision" falls within the range of alternatives described in both the draft and final EIS. The FEIS issued in 1989 was updated to reflect comments on the 1983 draft, 1986 Supplement and BLM experience on the interim time period. The proposed "Record of Decision" reflects additional comments and suggestions concerning the FEIS and what the "Record of Decision" should contain.

83. Comment: BLM should include the qualitative assessment of human health risks prepared for the U.S. Forest Service in its decision making process.
Response: BLM has considered both the quantitative and qualitative risk assessment results used by the USFS in developing its proposed "Record of Decision".

84. Comment: BLM has not described its experience with alternatives to herbicides implemented since 1984.
Response: BLM has routinely used an integrated pest management approach to vegetation management. Thus, alternatives such as prescribed burning, hand cutting, paper mulching, and hand pulling of ceanothus seedlings were expanded in evaluating the impacts of alternative 7 (no herbicide). BLM experience since 1984 was reflected by re-evaluating the treatment acreages and allowable cut impacts as shown on table 1-4. These impacts differ from the draft EIS. In addition, BLM experience and studies relating to manual methods are described on page 69 of the FEIS. BLM has been a ten year member of the cooperative OSU program called "CRAFTS" (Coordinated Research for Alternative Forest Treatments), a

principal sponsor of "FIR" (Forestry Intensified Research) and "COPE" (Coastal Oregon Productivity Enhancement). BLM is continuously looking for effective alternatives to chemical herbicides. BLM has been a major sponsor of cattle and sheep grazing trials in plantations on the Medford District.

85. Comment: Table 1-1a fails to compare the efficacy of non-chemical treatments and page 19 fails to discuss the timing for effective non-chemical treatments.
Response: The foregoing concerns are addressed on pages 20 and 21 of the FEIS.

86. Comment: Suggest BLM take another look at the data regarding the toxicity of Fosamine. It is inadequate to support the conclusory statements made by BLM.
Response: BLM has dropped Fosamine from its proposed program.

87. Comment: BLM fails to examine nuerotoxicity and immunotoxicity.
Response: BLM has considered neurotoxic and immunotoxic effects through both the Labat-Anderson (quantitative) risk analysis and the qualitative risk analysis contained in the U.S. Forest Service FEIS appendix N. In addition, BLM has considered the Journal of Pesticide Reform article entitled, "The Immune System and Pesticides" in formulating its proposed "Record of Decision".

88. Comment: BLM abdicates to EPA regarding secret ingredients.
Response:
(Labat-Anderson)
BLM will use no herbicide formulated with an inert ingredient on EPA lists 1 and 2 unless an independent risk assessment is done on that inert ingredient. Neither the inert ingredient nor its health risk would remain a secret in those instances.

89. Comment: BLM fails to discuss the cumulative effects of dioxins and furans in the western Oregon environment and its organisms and in the herbicides proposed for use by BLM.
Response: BLM has not found any evidence linking dioxin or furan contamination of the environment with the use of the herbicides proposed for use.

90. Comment: BLM should talk to Shelia Hoar Zahm at the National Cancer Institute regarding surprising findings about the slight increase on rates of cancer associated with the use of protective clothing.
Response: BLM has contacted Ms. Zahm who reported that the statistical analyses was inconclusive.

91. Comment: BLM fails to relate epidemiological and laboratory findings to consider patterns of concern. (NCAP comments relating to this subject made on the Supplement were not answered)
Response: The risk assessment did review available epidemologic evidence, but because that evidence was not conclusive, laboratory studies were relied upon to assess levels of human health risk.

92. Comment: BLM fails to address critical slash burning issues.
Response: BLM has incorporated NCAP citation summaries into the "Record of Decision" considerations and added more mitigation measures to reduce the acreage and degree of slash burning.

93. Comment: BLM fails to discuss chronic, sublethal effects on wildlife of herbicides.
Response: The NCAP reference to the Forest Service FEIS pp. IV-92-97 is an appropriate discussion of these effects. The "NCAP" papers provided in that discussion and these effects were considered in formulating the "Record of Decision".

94. Comment: BLM fails to adequately consider extent or effects of drifting herbicides.
Response: BLM's assessment of drift incorporates consideration of the literature provided.

95. Comment: BLM fails to consider effects on children and other sensitive individuals.
Response: BLM has considered effects on sensitive individuals and, through its standards operating procedures and mitigating measures, expects to minimize these risks. The "NCAP" references provided (Attachment G) have been considered in the decision making process.

96. Comment: BLM fails to adequately consider effects of herbicides on soil and water.
Response: BLM acknowledges the uncertainty regarding impacts of herbicides on soil and water.

97. Comment: BLM has not revealed uncertainties in detecting herbicides in water.
Response: BLM acknowledges that monitoring water for herbicide residues is not viable for glyphosate and the results are not consistent across the range of laboratories available to do the testing.

Appendix A

U.S. Department of the Interior
Bureau of Land Management
Oregon State Office
1989

Western Oregon Vegetation Management Program Implementation Standards and Guidelines

Western Oregon Vegetation Management Program Implementation Standards and Guidelines

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Introduction

The objective of this document is to provide guidance for the site specific implementation of the commitments made in the 1989 "Record of Decision" for the Western Oregon Program - Management of Competing Vegetation (FEIS).

A corollary objective is to provide a field guide containing *brief* procedural and policy references for those individuals either directly or indirectly responsible for planning and implementing site specific forest vegetation management projects.

Bureau of Land Management Policies Concerning Pesticides

Policies governing the use of pesticides on lands administered by the Bureau are as follows:

A. All uses must conform with the basic policy statements of the Department of the Interior. Particular emphasis is placed on Departmental Policy "A" which requires full consideration of alternatives to chemical pesticides prior to the decision to use pesticides.

B. All proposed uses of pesticides on public lands are reviewed and studied thoroughly to determine the possible impact each may have on the ecosystem and total environment. Any pesticide use must be avoided in the absence of demonstrated need or if there is scientific basis for belief its use might result in unnecessary or excessive hazards to humans or the natural environment.

C. All alternatives of integrated pest management (IPM) must be explored. Integrated pest management emphasizes prevention of the problem, uses a careful monitoring system to keep track of the pest and employs a combination of chemical, biological, cultural, and other methods which reduce the adverse impact of pest control.

D. Unless delegated to field offices, all proposed pesticide projects are subject to review and approval by the Washington Office Division of Forestry (230). Projects that require the use of pesticides classified as restricted by EPA or propose uses that are uncommon as described by the Office of Environmental Project Review (OEPR) in the Department of Interior will be subject to a special review by OEPR. Proposed projects requiring OEPR review will be identified and forwarded to them by the Division of Forestry.

Review and approval authority for pesticide projects not requiring OEPR review may be delegated to state directors with staff expertise (i.e., certified applicator) in the use of chemical pesticides. (This delegation has been made to Oregon.)

All pesticide use proposals (PUPS) will be made on the form illustrated in attachment 1. A current label will be attached to each proposal submitted to the state office. Each district will maintain a current file of appropriate labels.

To allow time for review and approval of all proposed projects prior to preparation of project plans, all proposals will be submitted to the state director for review and transmitted to the Director BLM Division of Forestry before finalizing the annual work plan. In Oregon, only projects that propose the use of restricted pesticides or special use indicated by OEPR are subject to this review process. This review process is to ensure that the proposed projects are in compliance with label requirements and "ROD" requirements.

BLM district offices in western Oregon with certified applicators have been given authority to review and approve all district pesticide project proposals that do not require OEPR review.

Project proposals from the resource areas in these six districts will be made on the form attached (attachment 1) or a State Office approved substitute form..

Western Oregon district proposals not subject to OEPR review will be submitted to a designated district reviewer 1-3 months prior to the proposed time for implementation. Review and approval will be made prior to finalizing the annual work plan. Project amendments are also subject to review and approval by the district reviewer. This review process is to ensure that proposed projects are in compliance with label requirements and "ROD" requirements.

Western Oregon Vegetation Management Project Planning and Decision Making Policies and Procedures

Introduction

The 1989 "Record of Decision" for the (FEIS) Western Oregon Program - Management of Competing Vegetation supplements departmental and Bureau policy.

The Record of Decision "ROD" contains the Integrated Pest Management (IPM) definition and vegetation management treatment philosophy and priorities that will be used to manage competing vegetation in western Oregon.

The thrust of this decision is to prevent or reduce the need for future vegetation control by inserting known ecological relationships into the proposed land management activity decision making process so that the activity is designed to eliminate or reduce the probability for the need for vegetation treatment after the activity has taken place. Effective alternatives to herbicides are to be the first consideration for existing vegetation management problems.

All vegetation management tools (manual, mechanical, burning, biological, herbicides, and no-action) are appropriate responses under Alternative 1-A. However, each resource area will actively look for opportunities to reduce their past reliance on herbicides and prescribed burning.

Herbicides will be employed only when necessary to meet management objectives, i.e., when other methods would be more damaging environmentally, or ineffective, or unreasonable in cost.

Prevention Strategies

Vegetation management through prevention has two facets, one being prevention so the problem doesn't occur at all and the second is prevention of a major problem.

In the first case, prevention is the avoidance of conditions which allow a problem to occur, i.e., the unwanted vegetation is not on the site before logging but has the potential to invade. This is generally the case with species that develop primarily from seed such as grass, forbs, alder, ceanothus and manzanita. One way to determine whether the species has a potential for colonizing the site is to examine other disturbed areas. If the species is present there it may become established in new units given similar establishment conditions.

In order to prevent colonization of a site, it is necessary to avoid creating a good seed bed that would result from burning or soil disturbance. Burning will encourage ceanothus and manzanita germinants, and soil disturbance will encourage alder, grasses, forbs and manzanita. planting into slash is an alternative to burning.

In the second case, prevention is minimizing the potential of having a major problem, i.e., the weeds are on the site before logging. This is characteristic of the sprouting shrubs and hardwoods such as tanoak, madrone, maple, hazel, bigleaf maple and salmonberry. These species will sprout and appear in the new unit, and in this case, we are trying to prevent a major problem. Treating the weed before it is a major competitor will generally require less severe measures.

One method that may reduce vigor of sprouting plants is to maintain a dense forest canopy at least 10 years prior to harvest. This will reduce sunlight to the understory, making it less vigorous. Another method that may be tried is treatment of the understory before logging. This could involve using hack and squirt or manual cutting on tree-form plants or backpack chemical treatment or manual treatment on shrubs. The above methods are suggested on an experimental basis to determine efficacy. In conformance with our treatment priorities, herbicides would be used only as a last option and after considering public comment. Another experimental method is underburning of a stand before harvest. The objective of these methods is to reduce the amount and vigor of the sprouters after logging.

Site Preparation - Treatment Selection

Site preparation is treatment that occurs after logging but before planting seedlings. Site preparation needs may be anticipated by examining the stand before harvest. If the understory has numerous sprouting shrub clumps, then those clumps will be present after harvest and may be highly competitive with new conifers. Chemical site preparation may be done prior to burning to reduce shrub vigor and dry the shrubs for better burning or it may be done in lieu of burning. In the former case, consideration will be given to manual slashing before burning. Slashing can result in good pre-burn conditions, but will do little to reduce resprouting. In the latter case, use of chemicals is important. Planting a seedling into an existing shrub stand may cause mortality. If burning cannot be used, then competition can be reduced by use of herbicides. Surveys will be conducted before treatment to determine whether the conditions are severe enough to warrant treatment. Other factors, such as seedling size and species, should be considered when making the treatment selection. For example, planting a larger seedling, which may be better able to compete with shrubs, may eliminate the need for vegetative treatment on some sites.

Release - Treatment Selection

Maintenance and release are treatments that occur after seedlings are planted. Maintenance is generally done in younger plantations to insure survival and release is conducted to assure acceptable growth rates.

In dry areas with large amounts of grass and forb competition, seedling survival is almost always threatened. Experience and observation of adjacent units should result in prediction of this problem. The treatments available are livestock grazing, scalping, paper mulch, and herbicides. Paper mulch and herbicides are both effective, however, paper mulching may not be feasible on very steep slopes. Biological treatments (grazing) are still under review (preliminary data shows some benefit and operational methods are being worked out). Scalping may not be effective because weeds can reinvade the site within weeks. In dry areas, survival may be threatened immediately or it may not occur for four to eight years. The above scenario may also occur with shrubs and hardwoods.

Pre-Treatment Survey(s)

Except for categorical exclusions such as precommercial thinning with cutting methods, pre-treatment vegetation management surveys listing site specific data must be collected to assess vegetation management needs and as a data base to be used in the site specific analysis required by NEPA.. The degree of detail may vary according to conditions on the site(s). Reference attachment 2 for vegetation management survey form for collecting data under a variety of field conditions. This form or a satisfactory modification of it will be used throughout each district in order to provide consistency in the analysis of vegetation management needs.

Documentation of the following information is suggested as a minimum when conducting pre-treatment vegetation management field surveys:

1. Management program/objective for the site.
2. Description of the existing vegetation and proportion of the area that may present a management problem.
3. Management history of the site including any prior vegetation management treatments, if applicable.
4. The potential response of the competing vegetation if the proposed management activity takes place and the potential preventative strategies designed to eliminate or reduce the probability for the need for vegetative treatment after the activity has taken place.
5. A map of the survey unit showing potential problem areas and illustrating pre-treatment findings.
6. Recommended treatment methods, if needed.
7. Consider the efficacy of the control method proposed and alternative actions and explain how efficacy was determined.
8. Project feasibility, which is defined by logistical considerations, including timing of the project as well as the availability of money, people, time and equipment.
9. Evaluate costs of the alternatives,including costs such as:

- administration
- training
- performance of the work
- emergency response planning
- notification and posting
- herbicide storage
- marking buffers and sensitive areas
- pre• and post• treatment monitoring
- other mitigation measures
- public meetings and information sessions
- protective equipment and clothing
- record keeping

10. If herbicides are recommended, the following additional information is required.

a) Herbicide, application rate, carrier

b) Posting requirements found on the label

c) Positive placement techniques planned to minimize drift and effects on non-target areas or plant species

d) Method of application

e) Special restrictions on the herbicide label with regard to handling, buffer strips, grazing, planting, wind speed, droplet size, etc., and

f) Water monitoring needs

Pesticide Use Proposal (PUP)

Upon completion of the pre-treatment survey, a pesticide use proposal (PUP) form (attachment 1) will be completed for those areas that may require treatment with herbicides. Completed PUPs will be transmitted to the district pesticide project reviewer for review and approval or for review at higher organizational levels if required. Project forms will be completed for proposals in individual resource areas. Approval signifies agreement that the project is in

accordance with label requirements and Bureau policy and does not constitute authorization to proceed with the project.

Environmental Assessment/Decision Record

A single environmental assessment can be prepared in each district or resource area to address the entire vegetation management program for the entire project year (i.e. Spring, 1990 and Fall, 1991). However, separate "Decision Records" and if needed, FONSI statements will address each practice (i.e., herbicide, manual, mechanical, burning and pre-commercial thinning, etc.) for the program year.

Ideally, an environmental assessment (site specific as possible) of the vegetation management program should be completed and reflect realistic work plan expectations. Due to requirements for early public involvement if herbicides are proposed for use, adjustments for fiscal year overlap, and the dynamics of vegetation growth, initial assessments may need further refinement before a decision is made.

Environmental assessments will reflect available data about environmental impacts of each proposed practice and the toxicology of each pesticide proposed for use. For herbicides addressed therein, this may be accomplished through incorporation by reference to the "Western Program for Managing Competing Vegetation" in each district EA, the "Decision Record" and information packages developed jointly with the Forest Service. The following procedures and guidelines will be utilized:

Vegetation Management Program Environmental Assessment Guidelines

The tract-by-tract environmental assessment of vegetation management alternatives will be based on the pre-treatment survey data, silvicultural prescription, district planning guides and other relevant sources of information. The EA shall include brief discussions of the need for each of the practices, alternatives, environmental impacts of each practice and alternatives and a listing of agency and persons consulted as described in the BLM NEPA handbook (H-1790-1).

Specific factors to consider in the analysis include:

(1) An understanding of the resource management goals and objectives for the site.

(2) Required standard operating procedures mitigation measures and anticipated resource outputs.

(3) Potential risk of adverse human health effects, for both workers and the public.

(4) Risk of environmental damage to humans, fish and wildlife as well as the physical environment that may arise from the proposal.

Tiering/Incorporation by Reference

"Tiering" refers to coverage of general matters in broader environmental impact statements with subsequent narrower analyses concentrating on more specific project issues specific to the assessment subsequently prepared.

Tiering of the EA to existing environmental statements will be done as appropriate to minimize repetitive discussions in the broader statement and incorporate discussions therein by reference and shall concentrate on the issues specific to the projects proposed for treatment. Other material shall be incorporated by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The EA must indicate the availability of all referenced material.

Standard Operating Procedures

The following policies and procedures will be used for designing vegetation management projects.

Archeological-Historic Sites

BLM vegetation management projects that may affect areas of archeological or historical value will be preceded by a search through the cultural and historical sites listing currently on file with the State Historic Preservation Officer and the State Parks Department. The latest edition of the National Register of Historic Places and its monthly supplements will be consulted. In cases where there will be an effect from proposed projects, the Bureau will comply with Section 106 of the National Historic Preservation Act through the Council's "Procedures for the Protection of Historic and Cultural Properties". A preliminary archeological survey will be conducted if the proposed action may possibly affect archeological resources.

Recreation Sites

Herbicide applications in recreation areas will be made prior to or after maximum recreation use periods.

Threatened or Endangered Plants

If threatened or endangered plants are known or suspected to occur within the influence zone of the proposed action, an on-the-ground floristic inventory will be made. The proposed project will be modified or other actions taken (as required after the consultation process described in 50 CFR 402 and required by the Endangered Species Act) to protect these plants if they are threatened by the proposed action.

Wildlife

Vegetation management treatments in important wildlife winter ranges and calving areas will be scheduled on alternate years or areas so that forage resources are not significantly impacted. Consideration will be given to treating no more than 25 percent of the 0-15 year seral stages within a one mile radius of a treatment unit during any 3 year period if adverse impacts to wildlife are identified.

Wildlife Mating, Nesting and Game Trails

Important wildlife seasonal nesting and breeding areas will be identified and vegetation management either avoided or deferred, as necessary. Precommercial thinning projects will contain provisions for maintaining existing game trails free of slash accumulations that impede big game movement.

Wildlife Trees

Where numerous wildlife trees hazardous to implementation of the treatment exist on the treatment unit, retain a number for wildlife purposes that is consistent with applicable Bureau management plans.

Water Soluble Herbicides

Application of water soluble herbicides will be avoided on asphalt or paved road surfaces and stony, shallow, excessively drained soil with little clay content or organic matter where leaching or runoff may present a hazard to important water supplies. Dicamba and Picloram will only be applied after careful consideration of their potential to enter ground water at each site. Further, Dicamba and Picloram will be applied along roadsides only when ditchlines are not flowing water and rainfall is not expected within 24 hours.

Riparian Habitat

All riparian habitat designated by each district as a result of the Bureau planning system processes, and which may be significantly impacted by a proposed vegetation management treatment, will be protected.

Boundary Marking of No Spray Area

Areas to be protected from aerially-applied herbicides will be clearly marked with paint, flags, aluminum foil, or other obvious boundary markers or landmarks such as a road, stream channel or tree line that exists to differentiate the spray unit from the area requiring protection.

Road Maintenance

Use a combination of methods to promote the establishment of low growing acceptable vegetation. Where needed, apply dormant sprays for road maintenance, and develop a combination of mechanical cutting and herbicides.

Buffer Strips

The following are minimum widths (measured horizontally) for protective buffer strips for all herbicides applied adjacent to class I (BLM Order III and above) water, open streams, lakes or ponds. The buffer strip includes any designated riparian zone. Buffer strip width will equal the riparian zone or the following widths, whichever is greater.

Method	Buffer Strip
Aerial Spraying	100 feet
Vehicle Spraying	25 feet
Hand Application	10 feet

A buffer strip of at least 100 feet will be left untreated adjacent to dwellings, domestic water sources, pasture, and agriculture land when aerially applying herbicides.

Posting of Spray Areas

Install temporary project area signs at points of common public access that identify the herbicide used, date applied and purpose and telephone number of the local BLM office. These signs shall be in English and Spanish and other languages as deemed appropriate. Certain restricted use pesticides may require posting additional information described on the label as a condition of use.

Posting of areas treated with non-restricted pesticides is not required where the local manager judges there is no likelihood of public exposure.

Herbicide Application Contract Requirements

Most of the herbicides used in western Oregon are applied through contracts awarded to the lowest bidder. The contractor normally supplies and applies the herbicides.

1) Contracts for application will require that the water intake system for mixing shall be arranged so that an air gap or reservoir will be placed between the live water intake and the mixing tank to prevent any backflow of chemical into the water source.

2) Contracts for application will require that contractors will not wash out any spray tanks in or near any streams or dispose of any chemical containers on the contract area. Chemical containers should be disposed of at Department of Environmental Quality approved sites.

3) During aerial spraying, spray will be turned off at the end of spray runs and during the time when a turn is being made to start another spray run. Initial spray swaths along buffer strips or areas to be protected will be made parallel to these areas and before spraying commences on the rest of the project.

4) Mixing and loading operations will take place in an area where an accidental spill will not flow into a stream or body of water.

5) Applications to asphalt or other types of paved roads will be avoided.

6) Aerial application equipment will be equipped with no drip nozzles that use a vacuum or siphon automatic shut off system that will draw the chemical back from the boom when not spraying. Spray nozzles on the boom will not be extended horizontally on the boom to more than 6/7 of the length of the helicopter rotor.

7) In aerial applications, the contractor shall provide at least one qualified individual for each mixing truck to handle fueling, mixing spray solutions and loading. This person shall be trained and equipped to take remedial action in the event of equipment malfunction or spills of herbicide or herbicide carrier mixes.

8) To minimize drift and volatilization, aerial spraying operations will usually be prohibited when any of the following conditions exist on the spray area: wind velocity exceeds 5 miles per hour; temperature exceeds 70°F; snow or ice covers vegetation; raining or rain is expected that will reduce the effectiveness of the chemical being applied; foggy weather; relative humidity is less than 50 percent and temperature exceeds 70°F. (applies to water based sprays only); air turbulence (thermal up drafts, etc.) is so great as to seriously affect the normal spray pattern, and temperature inversions are present which could lead to off-site movement of the spray.

Label directions will be followed in lieu of the above steps if they prescribe different conditions of use. Low volatile formulations of phenoxy herbicides will be used to reduce the potential for off-site contamination.

9) Hourly measurements of weather conditions will be made by trained personnel at spray sites during application. Additional measurements will be made anytime it appears that a weather change may be taking place that could jeopardize safe placement of the spray on the target area.

10) Helicopters will normally be required to fly at an airspeed of 40 to 50 mph at a safe distance above the vegetation. Spray pressure in the boom will normally be 20 to 35 pounds per square inch. Maximum drift reduction with normal spray formulations and application equipment will be used.

Specific herbicide labels may specify boom pressures, air speeds, aircraft heights and nozzle configurations that are considered desirable to reduce drift and increase effectiveness. In the event of a conflict, the label specifications will be followed in lieu of the aforementioned requirements.

11) During air operations, a radio network will be maintained which links all parts of the project. Direct radio communications between spray aircraft and ground crews will be established.

12) Pre-spray reconnaissance flights will be made to orient pilots to project area boundaries and any sensitive areas such as agricultural lands, important streams, domestic water sources, residences, and fish hatcheries that are near spray target areas.

13) On herbicide application projects conducted directly by Bureau personnel, a certified employee will monitor and supervise the project. Contractors will be licensed according to State and Federal law. Compliance with contract requirements will be enforced by a certified BLM project inspector.

14) Buffer strips (or no spray areas) may be designated by the Contracting Officer's Representative (COR) or the project inspector during operations as a means to protect heretofore undetected threatened and endangered plants, riparian zones and other sensitive areas.

Protecting Human Health

When herbicides are used, the following standard operating procedures will be used:

• All BLM workers directly involved in the application of herbicides will be required to read the information packages (including unknown toxic effects) prior to proceeding with application.

• BLM supervisors or personnel applying herbicides will be trained in the safe application of herbicides and will be BLM certified.

• Adjacent landowners who could be directly affected by chemical drift, stream transport, or an accidental spill, will be notified (normally 15 days) prior to the chemical application.

• Kerosene will not be used in herbicide applications, except as an inert ingredient in the esther formulation of triclopyr.

• Use only herbicide formulations that contain inert ingredients recognized as generally safe by EPA, or which are of a low priority for testing by EPA. Use of other inert ingredients (i.e.,identified by EPA as a high priority for testing or those that have been shown to be hazardous) requires full assessment of human health risks incorporated into the NEPA decision-making process.

• Appropriate protective clothing will be worn by all workers (both BLM employees and contract workers) involved in herbicide mixing, loading, backpack applications, and hack-and-squirt applications (reference BLM Handbook 9011-I, Chapter II).

• Workers (both BLM and contract) who know that they are hypersensitive to herbicides will not be involved in application projects. Workers who display symptom of hypersensitivity to herbicides during application will be removed from the project.

When manual methods are used, the following standard operating procedures will be used.

• When manual methods are considered, an analysis of worker exposure to potential hazards and risks will be made. Safety of workers and the potential for serious accidents will be evaluated and mitigated where practical.

Example:

Protective equipment, including hard hats, gloves, boots, chaps, ear protectors and eye protectors will be worn by all BLM employees operating chainsaws. BLM contractors will make all this equipment available to all of their employees. Workers will be trained in the safe operation of chainsaws.

Avoid contact with diesel oil and gasoline.

First aid equipment and someone trained in its application will be on site to treat cuts, sprains, insect bites, etc.

When livestock grazing methods are used, the following standard operating procedures will be used.

• Adjacent landowners will be notified of possible biological contamination of water.

When the decision is made to use prescribed burning, the following standard operating procedures will be used.

For each project, the Bureau requires a written, site-specific prescribed burning plan approved by a line officer after fire management review. The purpose of the plan is to ensure that resource management objectives are clearly defined, that the site and environment are not harmed, and that the prescribed burn can be controlled. A prescribed burning plan must include:

• Description of the burn unit and the primary reasons for the burn (site preparation, hazard reduction, deer habitat improvement, etc.).

• The range of acceptable results expressed in quantifiable terms (reduction of the loading(s) of specific fuel class(es); numbers of planting sites; stimulation of growth of specific food plants, etc.).

• The burning prescription: includes weather and fuel moisture criteria that will produce the results specified above; fire behavior that will enable the burning crew to maintain control, and a fuels description including fuel types and loading in tons per acre.

• Pre-burn monitoring of fuel moisture and weather.

• Preparation needed for burning: specifies the location of fire breaks, hose lays, and other tasks required to prepare the site for burning.

• Prescribed burning plans developed to minimize the chance of escape. If an escape occurs, contingency plans are contained within the prescribed burning plan.

• Provision for pre-burn coordination: notification of regulatory and cooperating agencies and the affected public.

• Smoke management guidelines which identifies roads, airports, communities, residences, recreation sites, and scenic areas that must be protected from smoke; specifies procedures and conditions that will protect the environment and the health and interests of the public; and stresses adherence to the smoke management instructions.

• Safety and protection of improvements and fire-sensitive features: lists health and safety hazards; things, areas, etc. that must be protected.

• Firing, mop-up, and patrol procedures: specifies how the burning will be done.

• Documentation: includes monitoring of smoke and fire behavior and crew actions during the burn; post burn evaluation of results for comparison with the burn objectives.

In the development of prescribed burn objectives and the burn prescription, special attention is given to the following guidelines to prevent soil damage and degraded water and air quality.

• Care will be taken to avoid consuming more of the residues and forest floor (litter and duff) than necessary to meet burn objectives. This will protect the physical and nutrient properties of the soil. Care will be practiced when burning on steep slopes and on granitic or volcanic soils which are highly erodible.

• The goal of maintaining unburned riparian buffers is a primary concern. Care will be taken to limit the severity of the burn in and along intermittent streams where practical and feasible.

• Protection of visibility in Class I areas and the overall air quality is an important objective. All prescribed burning will be done in accordance with all state and local air-quality regulations. Special care will be taken to prevent smoke from affecting the visibility in Class I areas during periods of high visitor use.

• Prescribed burning will be planned to avoid smoke intrusion into smoke-sensitive areas identified in the Oregon and Washington Smoke Management Plans.

• To protect the visibility in Oregon Federal Class I areas, burning on non-visibility impaired days is prohibited in the Cascades from July 4 to Labor Day. There are several exceptions:
  when the burning is for research;
  if the mountain tops are covered with clouds;
  small test burns to aid in developing burning prescriptions;
  when hardwood conversion is the purpose; and
  above 5,000 feet elevation in the Cascade Mountain Range;
  south of the Calapooya Mountains Divide in southern Oregon.

All burning will be conducted in accordance with the Oregon Smoke Management Plan which has designated all pre-1984 Cascade wildernesses and Crater Lake National Park as "smoke-sensitive" areas.

• The Bureau will comply with visibility protection guidelines for Washington State's Federal Class I areas during "visibility important days" from July 4 - Labor Day in accordance with the Washington State Smoke Management Plan.

• The "best available technology" will be used to reduce smoke and the need for prescribed burning by taking into account other land management practices and costs, as determined on a case-by-case basis. The "best available technologies" applicable to prescribed burning include, (but are not limited to):
  removing (utilizing) woody material;
  reducing felling breakage (cable/directional felling);
  burning under spring-like conditions;
  rigorous mop-up of prescribed burns;
  rapid (mass) fire ignition;
  utilization of alternative treatments; and
  burning only during optimum conditions.

Soil Protection

Soil protection will be enhanced by implementing the following procedures.

• For Mechanical Methods:
  Tractors prohibited on steep (35 percent and greater) slopes.
  Tractors prohibited on fragile soils.
  Tractors prohibited on fragile soils in municipal watersheds or as specified in MOU's.
  Tractors limited to operation during periods of minimum levels of soil moisture.
  Leave buffers along streams, lakes, and wetlands.
  No slash piling in stream flood zones.

Public Involvement in Vegetation Management Planning

District vegetation management environmental assessments will be released to the public as early as possible in the planning process as specified in

district's public information plan. Ideally, the tentative plan will be released 5-6 months prior to implementation. Comments from the public and clearing houses will be considered by the decision maker in developing the final proposal. Procedures for clearing house review are described in BLM Manual 1785 (Relationships with State and Local Governments) and MOU OR-185.

Project areas tentatively identified for vegetation control as part of the annual work plan process may be examined for actual vegetative conditions more than once to assess the need for treatment before a final decision is made. The public should be informed of this refinement process. Suggestions from the public, budgetary constraints, new technology, reforestation program changes, changed onsite environmental conditions, safety, cost and other factors will be constantly weighed in selecting projects for treatment and treatment method(s).

Public Field Tours/News Releases

Interested members of the public requesting on-the-ground examination of individual tracts in conjunction with their review of the EA will be accommodated if the request and examination can be accomplished in a timely efficient manner.

News releases to inform the public about proposed vegetation management projects (including all types of treatment practices) will provide a description of the relationship of the projects to the overall goal of the Bureau's Western Oregon Forest Management Program.

Decision Document(s)

After public review of the environmental assessment, the decision-maker will prepare a decision record with supporting rationale after, (if appropriate, preparing) a "Finding of No Significant Impact" (FONSI) for each vegetation management practice analyzed in the EA. The FONSI lists the reasons an action will not have a significant effect on the human environment and states that an environmental impact statement will not be prepared. The findings shall note any environmental documents related to it. The FONSI need not repeat any of the discussion in the assessment, but may incorporate it by reference. Copies of the decision document will be forwarded to the state and areawide clearing house(s), local libraries and appropriate counties and cities.

Western Oregon Herbicide Program Implementation Policies

Implementation Plan

A sound plan involves prior planning, taking into consideration critical factors that must be evaluated and discusses with various individua's and agencies prior to implementation of the herbicide program.

Principal components of the plan should include a district specific flexible work plan, safety plan, spill contingency plan, application monitoring plan, water monitoring plan and public contact plan.

News Media

News media wishing to observe herbicide spray operations can be notified by making their wishes known to the district office. Arrangements will be made for Bureau employees to guide the news media to the spray operations.

Requirements for Notification of Residents Near Treatment Areas

Every reasonable effort will be taken to notify all residents on adjacent lands and contiguous landowners of record by word of mouth, hand carried letter or telephone. In general, every reasonable effort will be made to give notification by telephone or personal contact within 24 hours of spraying if requested. In addition, copies of spraying plans, i.e., what, where, when, who, will be posted in public locations at local communities nearest treatment sites. A record of personal communications should be kept on file.

Ground applied herbicides used for road maintenance projects, buildings and grounds maintenance, and spot treatments in forest sites require notification of those individuals judged by the area manager to live in close proximity to the treatment site.

Spill Prevention Response

The safe use of herbicides includes precautionary measures to prevent accidental spills or exposure. The following written precautions describe the measures that will be used to reduce the chance of such accidents, and the emergency action required if an accidental spill should occur. This direction supplements the district's "Hazardous Materials Management Plan" which is incorporated by reference.

Transportation

a) It is essential to prevent damage to containers so that leaks do not develop. Care will be exercised to preclude puncturing or rupturing of containers, and loosening of lids or caps on containers.

b) Precautions will be taken in the loading and stacking of herbicide containers on the transporting vehicle to insure that containers are tied down and will not fall as the vehicle moves.

c) Open containers will never be transported. Any containers opened and partially used must be securely resealed before transport.

d) After transportation, all herbicide containers will be inspected for damage and leaks, and the transport vehicle should be carefully examined for contamination and cleaned if necessary.

Aerial Application

a) Arrange spraying schedules so that visibility before and shortly after sunrise and sunset will not affect the safety of the pilot.

b) Flights will be at a height above the ground that will produce effective treatment results. In no case should the minimum flight height be less than 20 feet.

c) Pilots will be cautioned about dangers such as snags (wildlife trees), other reserved trees, and location of downdrafts. Review project maps with each pilot, paying particular attention to heliports, areas being sprayed, and approaches to and from those areas.

d) Caution pilots as to the location of telephone and electric lines near any heliport which will be used. Mark telephone and electric lines with highly visible material if it can be done safely.

e) When an injured pilot is taken to a hospital or doctor, make certain they know the pilot has been exposed to a herbicide and provide any herbicide label information that is available. Treat the most life threatening situation first.

Hand Application

When applying chemicals by hand, all new crew members will receive orientation on the reason for the use of the chemical; the proper handling and application of the chemical; the care of applicators and hatchets and the wearing of protective clothing.

Mixing and Loading Tankers

a) All valves capable of emptying the tanker will be locked when not in use.

b) An air gap or reservoir between the water source and the mixing tank is required. A separate portable pump may be required.

c) Mixing of herbicide spray solutions must be done away from streams, drains, or ditches leading to streams susceptible to exposure/contamination from spills.

d) Plan the movement of loaded herbicide tankers so as to minimize travel adjacent to streams.

Spills

a) In the event of a spill of more than five gallons of mixture or one gallon of concentrate, the project inspector or crew foreman will immediately implement measures to contain the herbicide. The following individuals will be notified as soon as possible: (1) the Area Manager, (2) the District Manager, (3) the District Office Hazardous Materials Management Coordinator and, if the spill cannot be contained or additional advice is needed, (4) the Oregon Accident Response System, Phone 800-452-0311 (Emergency Operations Center). Emergency Operations Center will notify the appropriate state agencies. Contact the State Police if radio, but no phone, is available.

b) Be alert for herbicide spills involving reportable quantities (RQ) of material which, by Federal Law, require an immediate report of the incident to the National Response Center (800-424-8802). Common herbicides with statutory RQs include Dicamba (1000 lbs.), and 2, 4-D (100 lbs.).

c) The Environmental Protection Agency will be notified immediately for advice if a major spill occurs. The emergency number to call is (206) 422-1200. For additional assistance, call the Pesticide Safety Team Network (503) 961-4300. Major spill examples include those that involve domestic or fish hatchery water supplies, people, livestock and crops.

d) Inspect surrounding areas for possible contamination.

e) Implement containment procedures by the contractor if required in the application contract.

Human Exposure

Exposure may be defined as an unplanned incident that may include direct contact with chemical concen-

trate (not mixed with carrier) or contact with chemical mixes during application (mixed with carrier). The definition does not include contact with drift outside the spray swath or contact by walking through previously sprayed areas.

a) The person should immediately flush the eyes (and other parts of the body subjected to the exposure) with water.

b) The person will immediately inform his or her supervisor or other person in charge of such exposure.

c) The supervisor will determine with the employee the extent of the exposure (i.e., kind of chemical(s); how exposed - drift, spill, direct spray; type of exposure(s) - skin, ingestion, inhalation); and the location of the accident.

d) The supervisor or district safety officer will immediately consult with the Chairman at the Pesticide Analytical Response Center (PARC), FTS 520-3776, Comm. 378-3776.

e) If deemed necessary, and/or recommended by consultants, the supervisor/safety officer will send the employee to a doctor and complete form CA-16.

f) An employee will fill out one CA-1 Form (injury report) and write a memo of occurrence.

g) The supervisor will document the circumstances involved in the exposure.

h) The supervisor will contact the applicator and verify the identity and composition of the chemical/mix used.

i) Any member of the public that comes in contact with a herbicide will be encouraged to wash immediately. If there is concern about exposure, it is recommended that the person be taken to a hospital where a physician can determine the level of exposure.

Contract Diary

On all construction and land treatment contracts, the project inspector maintains a daily log of contractor's operations and progress during the contract period using Form 1510-57, Contract Diary. This log is the Bureau's official daily record of all pertinent events during the contract and will be required to substantiate the Bureau's decisions in claims, liquidated damages and other contractual conflicts. It is important that the log be kept complete, clear and concise. The District Office retains the contract diary for six years after final payment on the contract.

Weather Record

In accordance with State Forest Practice Act requirements, record temperature, humidity and wind conditions at least hourly in the project area and vicinity which are pertinent to the conduct of the work. Record unusually severe conditions, including heavy rain or snow, severe cold spells, hail, etc. Include comments as to how these conditions affected the application.

Storm Disaster

Specific information on disastrous storms can be obtained from the nearest Weather Bureau station. This includes official records of beginning and end of storm period, after-effects, etc.

Working Conditions

Weather conditions which normally would not be considered extreme may affect certain types of work. For example, aerial spraying cannot be done in relatively moderate wind conditions. Other work is impeded by high or low temperatures. Relate the effect weather conditions have on work, and indicate what normally could have been done.

Contractor's Progress

Include daily entries on progress of work. Indicate date that specific acreages are completed. Show time the work begins and stops. Reductions or increases in the contractor's crew are pertinent. Indicate when deliveries of supplies or materials are made. Relate progress to contractor's work schedule if he has submitted one.

People Present on Contract Area

List the names of the contractor's crew and BLM personnel present on the site at the time of spraying. Describe any others such as law enforcement personnel and demonstrators.

Supplies of Materials

Indicate the volume of herbicide mix applied each day as agreed with the contractor.

Shutdown or Reduction of Work Force

If a contractor shuts down operations, removes or reduces the size of his crew for any reason, record the dates and circumstances and continue close inspection. Advise the Contracting Officer immediately if these actions jeopardize timely completion. Do not wait until completion time expires.

Conferences with Contractor or Representative

COAR or project inspector discusses operations and developments with the contractor's foreman including plans, implementation and anticipated completion of units, law-enforcement, labor and payrolls and instructions and work directions. Record all items discussed and instructions given.

Problem Developments

As work progresses, problems may arise, such as unusual weather conditions, equipment break-down, and demonstrators or complaints. Record any such incidences in detail.

Spills

Describe the circumstances involved, actions taken and notifications made.

Other

Describe any protester interference, equipment problems, or deviations from Environmental Design features/contract requirements. Note any deployment of splash cards and water monitoring efforts.

Contract Modifications

If notified by the contractor or determined by the project inspector that a change in the specifications or amount of work is needed, record the circumstances, how it became known, the inspector's report, etc.

Government-caused Conditions

Give details, dates and impact of delay on contractor's schedule.

Adverse Safety Conditions.

Note safety conditions, any violations of safety rules, recommended corrections.

Materials Received on Job or Returned to Stores

Show condition, kind and quantity of materials received or returned, either Government-furnished or contractor-furnished. Indicate where and how the contractor stores his tanker, helicopter and other equipment when not in use.

Stop and Resume Orders

Instructions to Contractor Issued. Note in log when such orders are issued and state reasons why.

Labor Problems

List any problems noted and action taken to secure correction.

Storage of Chemicals

Safe storage of toxic materials is necessary as well as proper disposal of empty containers.

a) Record the measures taken by the contractor to safely store pesticides.

b) Indicate disposal plans for empty containers.

Security Precautions

Record steps taken to protect personnel and equipment from vandalism, injury and sabotage.

Post Treatment Evaluation

Every tract undergoing a vegetation control treatment for site preparation, stand maintenance or release will be evaluated to determine treatment effectiveness. The examination will focus on the short/long-term impact on the target vegetation, the survival and growth of crop trees, and injury to crop trees. Other environmental impacts projected before treatment will also undergo a post treatment evaluation. Generally, such evaluations will be taken within one or two years after treatment.

Methodology for the post treatment evaluation will be developed by individual districts and will be consistent within the district. Minimum requirements include a written evaluation that contains quantifiable data and the rationale for any conclusions reached. A reforestation stocking survey may be a significant part of the post treatment evaluation process on some areas.

Long term studies of treatment effects may be conducted in cooperation with scientists from the Pacific Northwest Forest and Range Experiment Station or Universities. Proposed studies or post treatment evaluations of this type should be reviewed by the Bureau's Western Oregon Research Committee and (if approved) funded in the annual work plan.

Water Monitoring

A water monitoring program will be carried out by each district as part of the proposed action. The purpose is to determine the effectiveness of buffer strips, and administrative controls in minimizing impacts on water quality and the aquatic environment.

Deep well water monitoring will be done upon request if there is a reasonable expectation that there is potential for contamination from BLM spray operations. Expertise from EPA, Oregon Universities and the State Department of Agriculture will be consulted if a monitoring request is received to ascertain whether such requests have any validity.

Each District will evaluate its monitoring needs. At the time the annual spray program is developed, the District should determine the location of Class I streams and those areas which might require special attention such as domestic water supplies and fish hatcheries.

This information will be used in establishing priority sampling areas. When reviewing the locations of planned herbicide treatments, the District person responsible for water quality monitoring will select sample sites for water quality samples.

Monitoring schedules will be designed to sample during periods when any contamination will be most detectable. Contingency plans should be developed to permit sampling during any phase of the treatment program should a situation arise when quick reaction is needed. Control samples will be taken prior to treatment. Ideally, this should be within 24 hours of the treatment period. The sample should be taken from the same site as the other monitoring samples.

The following procedures and guidelines are based on procedures outlined in: 1) the herbicide environmental statement, 2) the EPA publication 910, "Silvicultural Chemicals and Protection of Water Quality", 3) U.S. Forest Service guidelines and suggestions, and 4) comments by BLM field personnel. Detailed procedures for sampling, analyses of samples and sample storage are not described in the following material.

Selection of Monitoring Streams and Stations

Any stream may be considered for water quality sampling, however, it is neither possible nor necessary to sample all waters. To aid in selecting streams for monitoring, a priority system has been developed. Highest priority will be given to those streams with important fisheries, extensive human use, or where the potential exists for major environmental impacts. The following is a list of priorities identified in the Vegetation Management EIS for which monitoring is required:

Municipal Watershed

Sampling will be done on streams contributing a major portion of a municipal water supply if: a) the spray project is adjacent to a stream; and b) the diversion point for the municipal water supply is not more than 10 miles downstream from the treatment area. *Sample sites* will be established *just below the treatment area* and *just above the municipal water diversion point.*

Fish Hatchery Supply Watershed

Sampling will be done on streams providing water for fish hatcheries if the fish hatchery is less than 10 miles downstream from the treatment area. Sample sites will be established *just below the treatment area* and *just above the hatchery diversion point.*

Domestic and Agricultural Watershed

Agricultural uses include irrigation and livestock uses. Streams used for domestic and agricultural water supplies will be sampled if the diversion point is *one mile or less* downstream from the treatment area. *One sample site* will be established below the boundary of the treatment area.

Major Fish-bearing Streams

Major fish-bearing streams are those identified by District Biologists as Stream Order III and above (Class I streams). Sampling will be done on all Class I streams at sites located downstream from the treatment area.

Unique Situations

In addition to the above situations where monitoring is required by the Vegetation Management EIS, monitoring should also be considered on an individual basis in a number of other situations:

a) The stream is not classified as a Class I stream *but contains an important population of resident fish;*

b) The stream flows into a *marsh or lake* which is located within five miles downstream from the treatment area. Herbicide dissipates gradually in flowing

water, but will accumulate in quiet areas, such as lakes or marshes. In the lakes or marshes, the herbicide can affect rooted or planktonic flora;

c) Thirty percent (30%) or more of a watershed is being treated in one year. This is especially important during the winter and spring months when many of the smaller ephemeral and intermittent streams are flowing. Any herbicide entering a smaller stream will be quickly diluted when the smaller stream merges with other streams. If several areas in a watershed are treated, the dilution effect may be lost. In watersheds with extensive herbicide treatment, where the dilution effect may be reduced, sampling should be considered, at least on the larger streams downstream from the treatment area;

d) The watershed is considered to be socially sensitive. Public interest is often much greater in some areas than others. Those areas for which the public has expressed the most interest should be considered for water quality monitoring.

Permittee/Licensee Projects on Bureau-Administered Lands

1. Right-of-way grantees, lessees or permittees that may be using or that may be reasonably expected to use chemical pesticides on Bureau administered land shall be notified of Bureau policy and procedures.

2. Projects submitted by permittees, etc., should be reviewed by the district for compliance with policy and on-the-ground desirability in the affected resource area(s).

3. Projects submitted by permittees, etc., shall be numbered sequentially with district projects and processed as an integral part of the district's pesticides plan/program. This requires that:

a) Projects requiring the use of restricted pesticides shall be submitted through channels for review and approval by the Oregon State Director and the Washington Office.

b) Projects shall be described and analyzed in an environmental assessment.

c) Each permittee-licensee shall be required to comply with Bureau guidelines for notification of residents in proximity to Bureau-administered lands regarding the permittee-licensee's pending or annual spray operations.

d) Each permittee-licensee will be asked to identify (in light of Bureau water monitoring guidelines) any areas where water monitoring should be done to detect potential measurable water contamination from their operations of Bureau lands.

e) The Bureau will work with the permittee-licensee in determining the location of monitoring stations and frequency of sampling.

f) If no areas qualifying for water monitoring are identified, this fact should be documented by BLM and the permittee-licensee.

g) The permittee-licensee will be responsible for conducting water monitoring.

h) Projects shall be monitored for execution in compliance with plans and requirements.

4. Organizations with rights-of-way across more than one district will be required to submit a separate plan to each district.

5. Grantees, lessees and permittees shall be notified annually, if necessary, of their obligation to the Bureau if pesticides are proposed for use.

6. The district will have the responsibility for administering Bureau requirements for pesticide use on all rights-of-way. Consolidation of district pesticide plans for processing will be the responsibility of a district staff pesticide use coordinator designated by the district manager.

Federal Pesticide Act of 1978

The Federal Pesticide Act of 1978 made several changes in the use of pesticides in forestry. The amendments of most interest to the Bureau's use of herbicides in western Oregon pertain to the definition of "uses inconsistent with label instructions." Specifically, it is now permissible to:

1. Apply registered pesticides at a rate less than the label dosage (effective April 1, 1979 for agricultural or forestry use).

2. Use a pesticide to control a target pest not on the label unless labeling states that the pesticide be used only for pests on the label and the registered rate of application is not exceeded.

3. Use an application method not prohibited by the label even though the method may not be mentioned specifically on the label.

Appendix A
Attachment 1

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Pesticide Use Proposal

FISCAL YEAR _____

DISTRICT _____

PROPOSAL NUMBER _____

PERSON TO CONTACT _____ FTS NUMBER _____

PART I - CHEMICAL _____

COMMON NAME AND TRADE NAME (e.g., picloram, Tordon 22K)

EPA REGISTRATION NUMBER _____

APPLICATION RATE _____

DILUTION RATE _____

NUMBER OF APPLICATIONS _____

METHOD OF APPLICATION (e.g., aerial, backpack) _____

EXPECTED DATES OF APPLICATION _____

COPY OF LABEL IS ATTACHED YES ____ NO ___

PART II - PEST (common name of target species) _____

_____

PART III - SITE

NUMBER OF ACRES _____ NUMBER OF SITES _____

GEOGRAPHICAL DESCRIPTION OF SITE AND OBJECTIVE OF TREATMENT _____

_____

DESCRIPTION OF SENSITIVE AREAS (e.g., fisheries, domestic water) _____

_____

SPECIAL PRECAUTIONS (e.g., mitigation measures, special label requirements like grazing restrictions) _____

_____

_____

OTHER COMMENTS _____

_____

_____ _____

NAME OF PREPARER DATE

Appendix A
Attachment 2-1

VEGETATION MANAGEMENT SURVEY

District _____ Surveyed by _____
RMA _____ Date _____

1. Location of units

   T._____R._____Sec._____Unit No._____Other:_____

2. Management program or objective(s) (circle)

   Timber production, wildlife forage, livestock forage production,noxious weed control, safety and protection of roads surfaces, other_____

3. Productivity class (circle if applicable)

   Low, medium, high or Site Index_____ft. at____years (Species:_____)

4. Intensity of survey (circle)

   General Reconnaissance, informal transect across unit(s), formal transect with sample plots across unit, representative staked trees across units.

5. Physical features

Unit #	Acres/miles	Av. Slope	Ave. Elev.	Access	Other (Aspect)

6. Existing vegetative community(list at least 3 principal species-target and non-target)

Unit	Species	Stocking	Percent of Cover or No./Ac	Height	Vigor	Relative Threat To Objective*

*Rate on a scale of 1 through 10 (insignificant to significant)

7. Briefly describe the threat that unwanted vegetation presents to management program objectives as shown in item 2.

--Ability to plant unit _____

--Effect on survival of planted trees _____

--Effect on growth of desirable vegetation (trees, grass, etc.)_____

--Other (safety, human health, etc.)_____

VEGETATION MANAGEMENT SURVEY

rend in vegetative community (1-3 year outlook) Describe trends in numbers, ateral growth/height, growth/sprouting/seeding/species composition.

stimating projected impacts of various control methods

is table to estimate each single treatment's effectiveness on each species in on to your objectives. Use a scale of 0 (ineffective) to 10 (100% effective). on three years + outlook.)

s	Unit No.	Mechanical	Fire	Manual	Chemical	Treatment Combination(s) Explain

onstraints (physical, environmental, safety, other)

he following constraints on a scale of 0 to 3; 0 = none, 1 = minor, 2 = moderate and jor. Indicate unit number where appropriate (show actual cost estimate).

Practices

ical	Fire	Manual	Chemical
Slopes	Smoke	Slash	Slash
	Cost*	Cost*	Cost*
Equip.	Hazard	Hazard	Sensitive Areas
n	Fuel	Access	Water
	Erosion	Slope	Avail. Equip.
licy**	Ag. Policy	Ag. Policy	Agency Policy
	Equipment	Other:	Other:
	Other:		

ations of methods:

cre costs to include posting, water monitoring, notification of surrounding ners, contract costs, force account labor, fencing, materials, etc. other costs ibe)

cy policy restrictions that constrain vegetation control such as; endangered , animals, wildlife, corridors, snags, scenic values, replanting, buffer zones, an zones, etc. Describe policy constraint:

Recommended control method(s) (If herbicide or combinations show; herbicide and er, rate of application, season of application and method).

Map of Area (Attach map, indicate sensitive areas such as residences within 1/2 mile, supplies, etc.)

General comments and/or summary of rationale for recommended treatment.

Appendix A
Attachment 2-3

VEGETATION MANAGEMENT SURVEY

Instructions For Completing Vegetation Management Survey Forms

Item	Instructions
1. Location of units	Identify township, range, section, unit(s).
2. Management objective(s)	Circle primary objective(s).
3. Productivity class	Circle if classification is known for timber, grass or other primary objective.
4. Intensity of survey	General reconnaissance (ocular-conditions are checked by a transect through the unit). Formal transect - a systematic survey such as a regeneration survey (see BLM 5705 for procedures) is conducted or trees are staked for future reference.
5. Physical features	Complete as appropriate for the units being surveyed.
6. Existing vegetative community	Develop estimates from survey data.
7. Threat to management objectives	Complete as necessary--attach additional descriptive material if warranted.
8. Trend in vegetative community	Explain expected changes in vegetation if no control efforts are made.
9. Evaluation of control methods	Show combination treatments and sequence where needed.
10. Constraints	Explain ratings on back of form if necessary.
11. Recommended control methods	Describe integrated (combination) or single vegetation control method and reason for recommendation.
12. Map of unit and surrounding area	Identify sensitive areas such as nearby crop land, domestic water intake.
13. General Rationale that supports treatment recommendations	Succinctly summarize the reasons supporting the treatment recommendation.

Appendix B

Consistency of the Bureau of Land Management's Western Oregon Program

Management of Competing Vegetation With the Oregon Coastal Zone Management Program

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Consistency of the Bureau of Land Management's Western Oregon Program - Management of Competing Vegetation, with the Oregon Coastal Zone Management Program.

Introduction

The Bureau of Land Management has completed a determination that implementation of the proposed Western Oregon Program - Management of Competing Vegetation would be consistent, to the maximum extent practicable, with Oregon's federally approved Coastal Zone Management Program. This determination is required by title 15 of the code of Federal Regulations, part 930.

Under Oregon Administrative rule 660-35-040 (5), the Oregon Department of Land Conservation and Development will rely on federal notification procedures to provide public notice of federal consistency determinations to interested persons other than the Department. The FEIS and proposed ROD note our extensive distribution of the document to known interested parties.

Proposed Activity

The proposed action is to adopt and implement a program for the management of competing vegetation under the provisions of the O&C Act of 1937 and Federal Land Policy and Management Act of 1976. These acts establish policies for managing forest resources and planning for use of lands administered by the Bureau of Land Management. The proposed program has been prepared to achieve the following objectives:

- Provide high level and sustained yield of wood products to contribute to local economic stability while providing for other land uses as required by law.

- Provide control of competing vegetation to assure prompt reforestation and species composition.

- Maintain air and water quality in accordance with Federal and State standards.

Applicability of the Coastal Zone Program

The Federal Coastal Zone Management Act (CZMA) calls for Federal activities directly affecting the Coastal Zone of a State to be consistent to the maximum extent practicable with approved Coastal Zone Programs.

The basis for the Oregon Program is the 1973 Oregon Land Use Act, ORS 197, requiring the state to develop statewide land and water planning goals and guidelines. (These form the basis of Oregon's Coastal Management Program.) The Land Conservation and Development Commission (LCDC) is the State Coastal Zone Agency. The boundaries of Oregon's Coastal Zone are generally defined to extend to the State's seaward limit (three miles offshore) and inland to the crest of the coastal mountain range. Under the Act, cities and counties are required to develop coordinated comprehensive plans which are in conformance with the goals of the State plan.

The Oregon Program calls for consistency review for activities directly affecting the Coastal Zone, including air, water, scenic, living, economic, cultural and/or mineral resources of the Coastal Zone.

Analysis of Consistency with LCDC Goals

This analysis of consistency for the proposed Western Oregon Program- Management of Competing Vegetation is limited to those goals which could be affected by silvicultural practices proposed for use under the preferred alternative on BLM timberlands in Western Oregon districts. Land use allocations within these districts, and consistency of those allocations with LCDC and CZMA goals, are discussed in individual timber management plans/Environmental Impact Statements (EISs) and Coastal Zone Program consistency statements. LCDC Goals not generally applicable to the proposed action and other alternatives are: 10. Housing; 11. Public Facilities and Services; 12. Transportation; 14. Urbanization; 15. Willamette Greenway; 18. Beaches and Dunes; and 19. Ocean Resources. Statewide planning goals considered applicable to the proposed actions are listed and discussed in the following material.

Goal 1 - To develop a citizen involvement program that ensures the opportunity for citizens to be involved in all phases of the planning process. BLM's planning process provides for public input at various stages. Six public scoping meetings for the vegetation management EIS were held in the summer of 1982. Three public meetings were held during the 60-day review period (summer 1983) for the DEIS. A 60-day comment period was provided on the Supplement to

the DEIS in the spring of 1986. The supplement presented a risk assessment and worst case analysis of impacts on human health from using herbicides. Public and interagency input from these citizen involvement activities is reflected in the draft, supplement to the draft and final EISs and have been utilized in the preparation of the proposed record of decision. A 60-day public review period with a 60-day extension was provided for the FEIS. Copies of this document have been distributed to known interested parties, public libraries, and State agencies through the State Intergovernmental Affairs Division.

Goal 2 - To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions. The proposed action is consistent with the Western Oregon BLM timber management plans previously reviewed and acknowledged by LCDC and is therefore consistent with LCDC goal 2. The timber management plans and associated land use planning process are authorized by the Federal Land Policy and Management Act of 1976 which provides a policy framework for all land use decisions and actions. The process for preparation of the environmental impact statement was guided by the Council on Environmental Quality regulations (40 CFR 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act of 1970.

Goal 3 - To preserve and maintain agricultural lands. The vast majority of public lands administered by the Bureau in the subject area are not suitable for intensive agriculture. Relatively little private agricultural land is adjacent to Bureau lands which might be treated for vegetation control under the proposed action. Consultation with adjacent landowners prior to site-specific project approval should ensure protection of agricultural crops.

Goal 4 - To conserve forest lands for forest uses. The program provides for retention of forest lands for forest uses. All uses of the BLM lands provided for in the proposal are compatible with the LCDC-approved forest uses in this goal.

Goal 5 - To conserve open space and protect natural and scenic resources. The proposal maintains current land use allocations, which conserve open space. Cultural, historic, natural and scenic areas are provided for. The degree of protection afforded wildlife on BLM-managed lands is somewhat inconsistent with this goal, in that the overall long-term results of controlling competing vegetation would be some reduction in habitat diversity with a corresponding reduction in wildlife species abundance and diversity. Chapter 3, Environmental Consequences, of the EIS describes impacts and possible mitigating measures more fully. However, it is notable that management practices and direction in the proposed action appear to be at least as consistent with Goal 5 as the management practices and direction for adjacent or nearby private and State lands.

Goal 6 - To maintain and improve the quality of the air, water and land resources of the State. The proposal provides for the attainment of minimum Federal and State water quality standards. The proposal is consistent with the Best Management Practices required under the federal Clean Water Act through the State "Section 208" Water Quality Program. These practices should minimize the potential for accidental herbicide entry to streams. Although slash burning is expected to increase total emission of air pollutants, all burning will be done in accordance with the State Department of Environmental Quality Statewide Smoke Management Plan. We understand that the Department of Environmental Quality's state agency coordination program, pursuant to ORS-197-180, was certified in 1983 by the LCDC as consistent with Statewide planning goals and the approved coastal zone program. The proposed program in the FEIS and attached proposed program record of decision would result in an insignificant loss of soil productivity.

Goal 7 - To protect life and property from natural disasters and hazards. The proposal incorporates design features which would protect life and property from hazards by use of appropriate buffer zones, treatment methods, public notices of specific projects and public review of district-specific vegetation management plans and related (tiered) environmental assessments.

Goal 8 - To satisfy the recreational needs of the citizens of the State and visitors and where appropriate, to provide for the siting of necessary recreational facilities including destination resorts. The proposal would protect developed recreation sites and trails and improve some BLM sites by controlling poisonous or noxious plants. Plants most often treated in or near Bureau recreation sites include poison oak, tansy ragwort, St. Johnswort, skeleton weed, thistle and blackberry. Some adverse impacts on visual resources would occur, but these would be localized and short-term.

Goal 9 - To diversify and improve the economy of the State. Economic diversity would not be affected, but total employment would increase since the proposal to control competing vegetation supports the BLM timber management program for western Oregon.

Goal 13 - To conserve energy. Conservation and efficient use of energy resources are objectives in all BLM activities. Use of cull logs and slash for chips, firewood and other products is encouraged as part of regular timber sales. Sale and harvest of minor forest products (e.g., posts, poles, firewood) from vegetation management actions on commercial forestland, woodlands and noncommercial forest areas is permitted in most areas.

Goal 16 - To recognize and protect the unique environmental, economic and social value of each estuary and associated wetlands; and to protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic and social values, diversity and benefits of Oregon's estuaries. The proposal recognizes and protects estuarine resources by striving to reduce sediment production in operations. All BLM vegetation management operations will comply with or exceed the requirements of the Oregon Forest Practices Act regarding stream protection. Some sediments would reach estuaries, but impacts are expected to be minimal and no greater than sediments from comparable non-Federal lands in the coastal zone. Residual herbicides from BLM lands are not expected to cumulatively affect estuarine resources or ocean resources.

Goal 17 - To conserve, protect, where appropriate develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water dependent uses, economic resources and recreation and esthetics. The management of these shoreline areas shall be compatible with the characteristics of the adjacent coastal waters; and to reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands.

No BLM timber program related competing vegetation management activity will occur within coastal shorelands identified under Goal 17 as a result of either:

a) Statewide planning goals adopted by LCDC, or
b) Acknowledged city and county comprehensive plans and land use regulations (either current or in future amendments), or
c) Statutory authorization of various agencies.

BLM (non-timber) vegetation management activities may include some Goal 17 lands such as Yaquina Head, New River (an area of Critical Environmental Concern) and the North Spit on Coos Bay, but it is anticipated to be limited to control of poison oak, blackberry, European beach grass, Scotch broom, gorse or other undesirable vegetation at recreation sites or in rights-of-way or to control encroaching vegetation which jeopardizes sensitive wildlife species habitat. Any vegetation management actions would be in direct support of Goal 17 resources, especially protection or maintenance of wildlife habitat, recreation and esthetics. BLM vegetation management activities outside of Goal 17 lands should not have any effect on the coastal shorelands. State and local governments will have the opportunity to review annual BLM district vegetation management plan environmental analyses to verify this conclusion. If any (state/local) comments identify unacceptable impacts, the project could be modified to conform to state/local guidelines or the project could be dropped. If non-Bureau agencies propose vegetation management actions on Bureau-administered lands, we will require that they prepare any required analysis and document state/local plan conformance or consistency or the project will not be authorized. This could include highway or utility right-of-way management, habitat enhancement, etc.

Effect of Federal Activity

The intergovernmental reviews on the effects of the management of competing vegetation program will be in addition to the annual state/local government review opportunities on District or Resource Area timber sale plans. It is important to distinguish between the forest product sales program (which includes road construction, timber harvest and removal), from the vegetation management program. Our current timber sale program is based on land use (management framework plans), timber management plans and associated environmental impact statements which were completed in 1979-1983 and acknowledged by DLCD as consistent with the OCMP. These decisions will continue to be the basis for the land use and timber management programs until replaced by Resource Management Plan/ Environmental Impact Statements (RMP/EISs)early in the 1990s. The six new RMPs will document consistency with state and local plans, programs and policies. New coastal management plan consistency determinations will be prepared and forwarded as part of the applicable proposed Resource Management Plan/Final Environmental Impact Statements.

During the review of the vegetation management environmental impact statement and preliminary consistency determination, both the DLCD and several other state agency comments expressed concern on the adequacy of information or evidence that the proposed management plan is consistent with the statutory authorities of relevant state agencies

listed in the OCMP. Based on discussions with DLCD staff, it appears that our minimum legally mandated consistency should be with five agencies certified to meet the 1983 standards (including the Dept. of Environmental Quality and State Health Division). We intend to meet federal and state water requirements under Sec. 313 and 319 of the Clean Water Act, as amended, where BLM is a "designated agency" and is held to the same standards as other agencies and individuals. We intend to meet or exceed State Forest Practice standards as enforced and implemented on similar forest (Goal 3, 4 and 5) lands. We have no current plans to harvest any BLM timber on Goal 17 lands. This should ensure that BLM meets state statutory standards for the Departments of Forestry, Agriculture and Fish and Wildlife.

The Vegetation Management Program will provide the basis for vegetation management activities, including maintenance of forest roads, utility rights of way, forest site preparation, maintenance, release, and precommercial thinning. The management program incorporates restrictions to protect fragile sites, riparian zones, wildlife habitat, recreation areas, visual values and other special values which were identified in BLM's various western Oregon land use and timber management plans. A portion of the BLM-managed lands are physically situated within the designated Coastal Zone boundary but excluded from the zone by law. Notwithstanding this fact, there are few, if any, impacts anticipated on estuarine resources, coastal shorelines, beaches and dunes or ocean resources.

Consistency Determination

Direction and techniques for management of competing vegetation on BLM-managed lands are established by BLM. The State sets minimum water and air quality standards, manages wildlife, including fisheries, and coordinates the development of local comprehensive plans. BLM competing vegetation management as set forth in the proposed action is consistent with the Forestry Program for Oregon goals and fully consistent with all relevant LCDC goals, except Goal 5 to Conserve Open Spaces, Scenic and Historic Areas and Natural Resources. In the case of Goal 5, the only inconsistency is that the plan will contribute to viable populations of wildlife while state goals call for optimum populations. The habitats affected, however, are on Federal lands, which are not included in the Coastal Zone.

In considering the consistency question it is appropriate to compare Federal activities affecting the Coastal Zone to uses allowed on similar (i.e., forested) private or State lands within the Coastal Zone. The BLM operational standards and practices are designed to meet or exceed the requirements of the Oregon Forest Practices Act. This Act is also the minimum standard on adjacent forest lands. Consistency with the State's CZM program should be determined, in part, by the actual management practices allowed on adjacent private and State lands, which are considered to reflect application of the enforceable, mandatory policies of the CZM program. This is particularly appropriate in the review of issues such as habitat diversity, riparian zone protection and effects on State listed threatened species. Bureau management should be considered consistent with CZM goals if it equals or exceeds State law as enforced in practice, and the example set on State lands. Bureau lands should not be considered as a buffer or counterbalance to State or private lands where intensive forestry practices have resulted in multiple use tradeoffs which are considered to be minimally consistent with the enforceable policies of the Oregon Coastal Zone Management Program.

In this instance, the application of the goals on other lands probably recognizes that balancing of LCDC Goals 5 and 9 require tradeoffs. The Western Oregon Program - Management of Competing Vegetation EIS and proposed decision identifies no alternative management plan that could both avoid reductions in wildlife populations in the long term and improve the economy by supporting implementation of the final decisions for timber management in the western Oregon districts. Given the BLM mandate on economic stability in the O&C Act of 1937, it is felt that consistency with Goal 9 must, in the balance, be given more weight than consistency with Goal 5.

Considering the factors discussed above, it is hereby determined that the activities proposed in the final Western Oregon Program - Management of Competing Vegetation EIS and proposed decision are consistent to the maximum extent practicable with the Oregon Coastal Zone Program as approved by the Secretary of Commerce.

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